

INVESTIGATION OF THE  
WASTE MANAGEMENT PRACTICES  
OF RETAIL MOTOR VEHICLE  
SERVICE STATIONS IN ONTARIO

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INVESTIGATION OF THE WASTE MANAGEMENT PRACTICES OF  
RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO

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## 1.0 INTRODUCTION

### 1.1 Background

The Ontario Regulation 309 was amended in 1985 to provide the Ministry of the Environment (MOE) with added control over the management of hazardous and liquid industrial wastes in the Province of Ontario. This amendment, officially designated as Regulation 309, represents "cradle to grave" legislation where the waste generator is responsible for the waste material from its conception to its ultimate disposal in an environmentally approved manner. Under Regulation 309, the waste generator is required to identify the type and quantity of hazardous or liquid industrial waste and to register these wastes with the MOE. The waste haulers and waste receivers must be registered with and approved by the MOE. Certain waste materials are excluded under Section 1(57) of Regulation 309. Included in the exemptions are "waste from the servicing of motor vehicles at a retail motor vehicle service station or a service facility that has a written agreement for the collection and management of such waste with a waste management system approved under Part V for the purposes" (Ont. Reg. 309, 1985). The intent of Section 1(57) was to exempt only automobile service stations; however, the present interpretation has come to include other vehicle servicing facilities such as auto body paint shops and marine and aircraft servicing facilities.

The Ontario Ministry of the Environment, through the Waste Management Branch, retained CANVIRO Consultants to identify the effect of the broader interpretation to which the exemption has been applied. CANVIRO's work involved the development of estimates of waste quantities and the assessment of the disposal methods for the various wastes produced annually by service stations in Ontario. This included an evaluation of the possible environmental impacts associated with these wastes and their disposal. The findings of this study are intended to contribute to the development of the MOE's policies regarding wastes from retail motor vehicle service stations. The project objectives are outlined in section 1.2.

### 1.2 Project Objectives

The central objective of this study was to establish the types and quantities of waste being generated by motor vehicle service stations in Ontario. This objective was achieved by first developing an inventory of service stations in the province. This inventory was used as the basis for

a survey to identify present waste handling practices as well as waste haulers and waste receivers presently servicing this sector of the market. Specific objectives of this study were:

- a) To identify the types of retail service stations (ie. auto body shops, marine service stations, gasoline stations, etc.) which are presently exempted by Regulation 309 and to estimate the total number of establishments within each retail division.
- b) To conduct a survey of a representative number of the various types of retail service stations throughout Ontario to adequately identify the nature of the waste generated, the quantities of waste generated and the existing disposal practices.
- c) To estimate the waste quantities generated on a province-wide scale through extrapolation of the survey results.
- d) To estimate the possible environmental impact of the waste management practices identified during the survey.
- e) To identify the major haulers involved in the management of waste from retail service stations (ie. pick-up and transportation).
- f) To identify the major receiver services involved in the management (ie. bulking, blending, processing and disposal practices) of waste from retail service stations.
- g) To prepare a final report summarizing the results of the study for the Ontario Ministry of the Environment.

The remainder of this report (Chapters 2 to 5) summarizes the survey methodology, analysis of the survey responses and extrapolation of the waste quantities. Conclusions and recommendations are presented in Chapters 6 and 7, respectively.

## 2.0 SURVEY PROCEDURES

### 2.1 General Approach

The procedure for the survey of retail motor vehicle service stations in Ontario is outlined in Figure 2.1 and summarized below.

- 1) Selection of a Representative Sample
- 2) Collection of Data
- 3) Analysis of Survey Data
- 4) Extrapolation of Waste Data

The specific components of the sample selection and data collection components of this survey are discussed in the remainder of this chapter.

### 2.2 Selection of a Representative Sample

#### 2.2.1 Establishment of the Total Number of Retail Motor Vehicle Service Stations in Ontario

The first step in the survey was to establish the total number of service stations in Ontario. Two service stations listings were reviewed in the proposal stage of this project. Table 2.1 summarizes the Dunn & Bradstreet listing and Table 2.2 summarizes the R.L. Polk listing. In both data bases, it was possible for one establishment to appear in more than one service station type (ie. a Canadian Tire outlet would have a gas bar, lube shop, transmission shop, etc. and would be counted once in each of these categories).

The R.L. Polk profile was chosen as the 'Master List' for this survey, since it was perceived to have a more complete listing of retail motor vehicle service stations. The Polk listing consisted of an 1100 page computer printout (see example page in Appendix A). The listing was sorted by postal code, beginning with postal code region 'K', through to region 'P' (K, L, M, N and P represent the first character of all postal code districts in Ontario). The Polk listing included the service station name, address, phone number, postal code and one or more U.S. Standard Industrial Code(s) (SICs) identifying the type of station. The approximate number of SIC counts in Ontario is summarized in Table 2.3 for each SIC category as provided by Polk in their listing. It should be noted that these numbers include the overlaps generated from, for example, a Canadian Tire outlet being

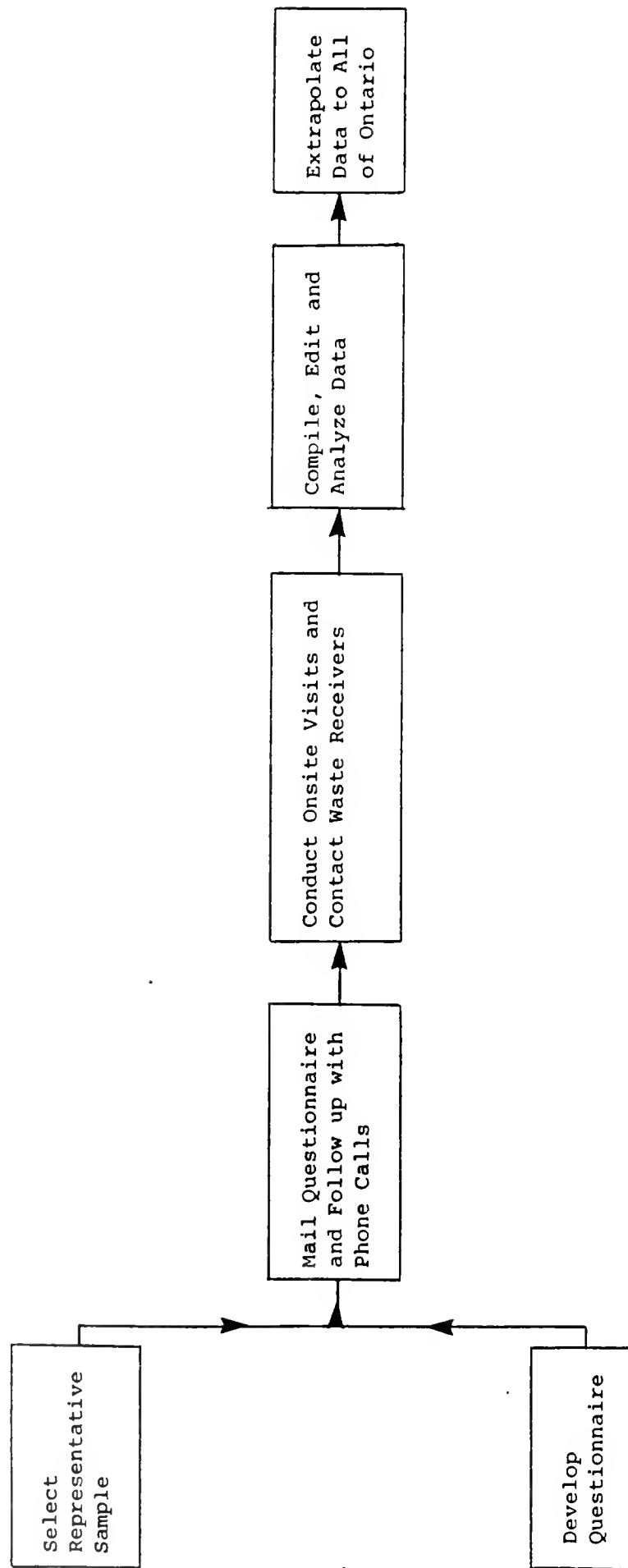


FIGURE 2.1. Flow Chart of Procedure for Survey of Retail Motor Vehicle Service Stations in Ontario

Table 2.1  
 PROFILE OF RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO  
 (Dunn and Bradstreet, 1986)

<u>Type of Retail Motor Vehicle Service Station</u>	<u>Number of Establishments</u>
1) Single Independent Gas Service Stations and Small/ Large Corporate Service Stations (eg. Petro-Canada, Shell, etc.)	3,351
2) "Lube Stop" (oil change and lubrication stations); Radiator Sales/Service Stations and Undercoating Retail/Service Stations (rustproofing and oil coating).	916
3) Auto Home Supply Stores (eg. Canadian Tire) in- cluding Battery Sales/Service Stations.	780
4) Transmission Sales/Service Stations	306
5) Auto Body Repair and Paint Shops	1,590
6) New/Used Car Dealerships	2,032
7) Motorcycle Dealer/Service Stations	214
8) All Terrain Dealer/Service Stations including snowmobiles, "dirt bikes", amphibians	166
9) Marine Motor Dealer/Service Stations	389
10) Airplane/Hydroplane/Helicopter Dealer/Service Stations	233
11) Construction Motor Equipment Service Operations	2,320
12) Motor Vehicle Rental/Service Stations	760
13) Retail Car Wash Stations	196
TOTAL	13,253

Table 2.2  
 PROFILE OF RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO  
 (R.L. Polk, 1986)

<u>Type of Retail Motor Vehicle Service Station</u>	<u>Number of Establishments</u>
1) Small/Large Corporate Service Stations - Gulf	397
- Shell	705
- Sunoco	503
- Texaco	497
- Ultramar	20
- Petro-Canada	327
	<u>2,449</u>
2) Other Single Independent Gas Service Stations (including outlets not listed above).	3,129
3) Battery Sales/Service Stations	204
4) Radiator Sales/Service Stations	649
5) Transmission Sales/Service Stations	732
6) Auto Body Repair & Paint Shop	3,228
7) New/Used Car Dealerships	4,059
8) Motorcycle Dealer/Service Stations (includes "dirt bikes")	366
9) All Terrain Dealer/Service Stations (snowmobiles, amphibians)	480
10) Marine Motor Dealer/Service Stations	548
11) Plane/Hydroplane/Helicopter Dealer/Service Stations	320
12) Motor Vehicle Rental & Leasing/Service Stations	2,096
13) Undercoating & Rustproofing Retail/Service Stations	267
14) Retail Car Wash & Polishing Stations	795
15) "Lube Stop" (oil change & lubrication stations)	<u>5,578</u>
 TOTAL	 24,900

---

Note: No establishments were identified in the construction  
 motor equipment service operations category.



Table 2.3  
INVENTORY OF RETAIL MOTOR VEHICLE SERVICE STATIONS IN ONTARIO  
(R.L. Polk, 1987)

<u>Type of Retail Motor Vehicle Service Station</u>	<u>Standard Industrial Code (SIC)</u>	<u>Approximate SIC Counts for Ontario</u>
Car Washing & Polishing	7542	825
Radiators Automotive	7539	655
Automobile Repairing & Service	7538	9,100
Transmission Automotive	7536	735
Automobile Repairing & Painting	7535	3,250
Automobile Renting & Leasing	7512	2,175
Batteries Storage Retail	5926	215
Motorcycle Dealers	5571	390
Snowmobiles	5559	485
Service Stations Gasoline	5541	5,585
Automobile Dealers Used	5521	2,825
Automobile Dealers New	5511	1,385
Helicopter Dealers	4512 - HELI	25
Marine Motor Dealers	4469	545
Automobile Customizing	3713 - AUTO	110
Engines Rebuilding & Exchanging	3594	215
		<u>28,520</u>

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Note: Each service station may appear in one or more SIC categories.

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outlet being listed with more than one SIC. The total number of establishments listed by Polk was 17,590, exclusive of any duplication. This total is somewhat less than the total count of 28,520 (Table 2.3) reflecting that some service stations have more than one SIC (see Appendix A for Example of Polk printout).

#### 2.2.2 Selection of the Establishments to Sample

Initially it was proposed to sample 250 establishments by mail and follow-up the mailed questionnaires with telephone interviews. However, based on CANVIRO's previous survey experiences, it was decided to increase the number of mailouts by approximately one third to ensure a minimum of 250 establishments would be available for waste data extrapolation. A total of 344 retail motor vehicle service stations were initially contacted by mail.

The methodology adopted in developing the mailing list for the questionnaire was to proportion the mailing list by SIC code. The mailing list distribution was derived based on the number of establishments in a given SIC category relative to the total count for the province. The list was further modified to ensure that a minimum of five businesses were contacted in each SIC category.

The mailing list was proportioned to achieve a representative geographic coverage. The province was divided based on postal code regions of which there are five (K, L, M, N, and P) as shown in Figure 2.2. The approximate geographic distribution of service stations was estimated from the number of pages for each postal code district in the Polk database. The resulting geographic distribution is shown in Table 2.4.

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Table 2.4  
DISTRIBUTION OF SERVICE STATIONS IN ONTARIO  
BY POSTAL CODE REGION

<u>Postal Code Region</u>	<u>Percent (%) (R.L. Polk)</u>	<u>Percent (%) (as mailed)</u>
K	17	17
L	29	28
M	18	19
N	24	23
P	12	13

---

The mailing list was modified to account for geographic distribution by distributing the number of establishments allocated for each SIC by the percentages shown in Table 2.5. The resulting distribution by SIC category and postal code district is shown in Table 2.5.

If a service station had more than one SIC, the first SIC listed was used. Throughout the database, the first SIC generally reflected the most appropriate SIC to describe the nature of the business for that service station. This was confirmed by comparing the first SIC to the company name, (ie. for a first SIC 7535, a company name of "Joe's Auto Body and Painting" would confirm the accuracy of the SIC). This was generally true for the majority of the database. For the purposes of this project the first SIC was called the Primary Standard Industrial Code (PSIC). This was used to characterize the service station type and to proportion wastes

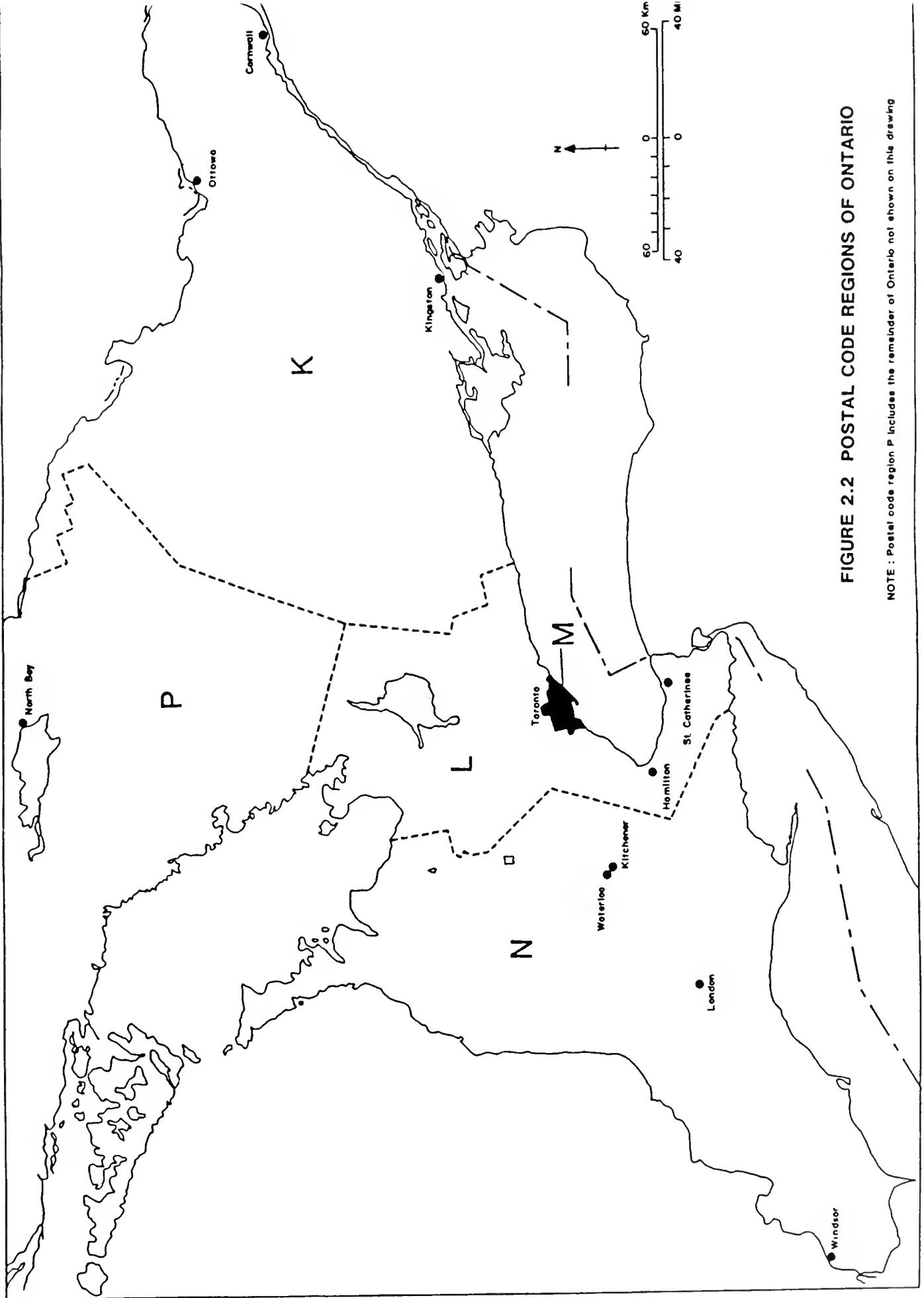


FIGURE 2.2 POSTAL CODE REGIONS OF ONTARIO

NOTE : Postal code region P includes the remainder of Ontario not shown on this drawing

Table 2.5  
DISTRIBUTION OF MAILED QUESTIONNAIRES BY SERVICE STATION TYPE  
AND GEOGRAPHIC LOCATION

SIC Code	Approx. Ont. Counts from R.L. Polk	Area Code Breakdown for Geographic Distribution					Total
		<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>P</u>	
7542	825	1	3	2	2	1	9
7539	655	1	2	2	2	1	8
7538	9,100	18	30	19	24	13	104
7536	735	2	2	2	2	1	9
7535	3,250	6	11	7	9	5	38
7512	2,175	4	7	5	6	3	25
5926	215	1	1	1	1	1	5
5571	390	1	1	1	1	1	5
5559	485	1	2	1	1	1	6
5541	5,585	11	19	12	15	8	65
5521	2,825	5	10	6	8	4	33
5511	1,385	2	5	3	4	2	16
4512	25	1	1	1	1	1	5
4469	545	1	2	1	1	1	6
3713	110	1	1	1	1	1	5
3594	215	1	1	1	1	1	5
Total	28,520	57	98	65	79	45	344

throughout the analysis of the survey data. The number of service stations contacted per SIC and per region was based on the proportions from the approximate Ontario counts per SIC (from Polk) and the postal code distribution (Table 2.4).

### 2.2.3 Random Selection of Retail Motor Vehicle Service Stations to be Contacted

Given the questionnaire distribution from Table 2.4, the businesses contacted within a postal code region were also selected to achieve a representative geographic coverage (given that adequate questionnaires were allocated). The actual businesses contacted were selected at random from those meeting the geographic distribution and SIC category criteria.

## 2.3 Data Collection

### 2.3.1 Questionnaire Development, Mailing and Follow-Up Telephone Interviews

The covering letter and questionnaire used for this study were developed jointly by the MOE and CANVIRO Consultants. A summary of the questionnaire is outlined in Table 2.6 and a sample questionnaire and covering letter are included in Appendix B.

Table 2.6  
SUMMARY OF INFORMATION CATEGORIES INCLUDED  
IN SURVEY QUESTIONNAIRE

A. Basic Statistics on Company

- name, address, phone number, postal code
- contact person(s)
- nature of business
- numbers of full-time and part-time employees

B. Fuel Sales

- % of fuel sales of
  - unleaded
  - leaded
  - diesel
  - propane

C. Waste Types and Quantities Produced/Stored with Disposal Method

- waste oil from oil changes and/or minor amounts of transmission fluid
- oil/sludge from interceptors (oil/water separator)
- water from underground gasoline storage tanks
- coolant from radiators
- used batteries
- paint sludge/paint overspray/spray booth filters
- cleaners, thinners, solvents
- degreasing agents
- other

D. General Questions

- problems disposing of wastes
- written agreements with waste haulers and their addresses
- comments, suggestions regarding waste disposal

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Note: See Appendix B for example covering letter and completed questionnaires

---

Table 2.7 summarizes the waste types and descriptions adopted for the questionnaire. These waste types are defined in this table and assigned a waste type number which is referred to throughout this study.

Table 2.7  
WASTE TYPE CATEGORIES

<u>Number</u>	<u>Description</u>
1	Waste Oils
2	Interceptor Wastes (Waste Oil/Sludge/Water)
3	Gasoline Storage Tank Bottoms
4	Coolant
5	Batteries
6	Paint Sludge/Filters
7	Non-Halogenated Cleaners, Thinners and Solvents
8	Caustic
9	Halogenated Cleaners

The questionnaire was mailed to 344 service stations in total as discussed previously. Of these questionnaires mailed, only 17 percent responded with complete questionnaires. Postal code region 'N' responded with the highest completion rate of 23 percent and postal code region 'P' responded with the lowest completion rate of 11 percent. A summary of the questionnaires returned by mail is provided in Table 2.8.

It should be noted that 46 questionnaires were returned due to incorrect addresses or because the company was no longer in business or had moved (Table 2.8). This amounts to 13.37% of the questionnaires mailed out and was much higher than expected. However, a suitable number of completed questionnaires were achieved through telephone interviews despite this apparent deficiency in the Polk database.

The targetted breakdown of service stations for contact subsequent to the mailout is listed in Table 2.9. Follow-up interviews were conducted by telephone to obtain missing information for incomplete questionnaires returned by mail. Businesses not responding by mail were contacted by telephone as well and questionnaires were completed by CANVIRO staff during the interview. Any uncooperative or unavailable businesses were replaced by a similar service station (equivalent SIC category) from the same region.

The final distribution of completed questionnaires at the conclusion of the survey is documented in Table 2.10. It should be noted that this table includes the questionnaires completed during onsite interviews which are described in Section 2.3.3. A total of 292 completed questionnaires was obtained which exceeds the number proposed by 14 once the 28 onsite interviews are accounted for.

Table 2.8  
QUESTIONNAIRE RESPONSE

Region	Responded With Completed Questionnaire	Questionnaire Returned Incomplete	No Response		Total Sent	% Completed Replies
			Moved or Out of Business	Incorrect Address (from Polk)		
K	12	2	3	1	57	21
L	17	1	6	4	98	17
M	8	0	9	4	65	12
N	18	1	9	4	79	23
P	<u>5</u>	<u>0</u>	<u>5</u>	<u>1</u>	<u>45</u>	<u>11</u>
Total	60	4	32	14	344	17

Table 2.9  
TARGETTED NUMBER OF SERVICE STATIONS FOR FOLLOW-UP  
TELEPHONE INTERVIEWS

SIC Code	Geographic Distribution by Postal Code					Total
	K	L	M	N	P	
7542	1	2	1	2	1	7
7539	1	2	1	1	1	6
7538	14	23	14	19	10	80
7536	1	2	1	1	1	6
7535	5	8	5	7	4	29
7512	3	6	3	5	2	19
5926	1	1	1	1	1	5
5571	1	1	1	1	1	5
5559	1	1	1	1	1	5
5541	8	14	9	12	6	49
5521	4	7	5	6	3	25
5511	2	4	2	3	1	12
4512	1	1	1	1	1	5
4469	1	1	1	1	1	5
3713	1	1	1	1	1	5
3594	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>5</u>
TOTAL	46	75	48	63	36	268

Table 2.10  
FINAL DISTRIBUTION OF COMPLETED QUESTIONNAIRES

SIC	Area Code Region					Totals
	K	L	M	N*	P	
7542	1	2	1	4	1	9
7539	1	2	1	3	1	8
7538	14	23	14	21	10	82
7536	1	2	1	3	1	8
7535	5	7	5	9	4	30
7512	2	5	3	7	2	19
5926	1	1	1	2	1	6
5571	1	1	1	2	1	6
5559	1	2	1	2	1	7
5541	8	14	9	14	6	51
5521	4	7	5	8	3	27
5511	2	4	2	5	1	14
4512	0	1	1	1	1	4
4469	1	1	1	3	1	7
3713	1	1	1	3	1	7
3594	1	1	1	3	1	7
Totals	44	74	48	90	36	292

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\* Note: Table includes establishments where onsite interviews were performed.

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### 2.3.2 Data Management

The Lotus 1-2-3 computer software package was used for management of data obtained during this survey. Three separate spreadsheet files were used to compile the data obtained from the survey questionnaire. These are:

- i) Basic company information
- ii) Waste management information
- iii) Waste hauler information

The information contained in each of the three files is outlined in Table 2.11.



Table 2.11  
INFORMATION CONTAINED IN SPREADSHEET FILES

A. BASIC COMPANY INFORMATION

- company number (arbitrarily assigned during compilation of data)
- page number from R.L. Polk printout
- SIC
- name, address, city, province, postal code, phone number
- questionnaire response code
- fuel sales breakdown
- number of employees : full-time and part-time
- other SIC numbers per Polk printout
- telephone response code
- number of phone calls made
- waste hauler information, agreement, problems
- contact person

B. WASTE MANAGEMENT INFORMATION

- company number (arbitrarily assigned during compilation of data)
- page number from R.L. Polk listing
- SIC
- waste identification number
- quantity reported
- units
- disposal method
- quantity stored
- units
- brand name of solvents, cleaners, etc.
- nature of business
- waste hauler information provided

C. WASTE HAULER INFORMATION

- waste hauler name, address, city, postal code, telephone number
- waste type(s) hauled

---

Note: See Appendix D to F for example listings and descriptions of data coding system.

Data from completed questionnaires received by mail, telephone interview or onsite visits were entered to the spreadsheet files. Any necessary replacements were also added to the survey database. The Basic Company Information File referenced in Table 2.11 included all businesses contacted and all businesses that we attempted to contact. All data were entered into a data sheet before being added to the appropriate computer spreadsheet file(s). Data files were stringently checked to ensure that any omissions and/or errors were eliminated.

Each of the three spreadsheet files are enclosed for reference in Appendices D to F for Basic Company Information, Waste Management Information and Waste Hauler Information, respectively. Floppy disks containing the data files have been forwarded under separate cover.

### 2.3.3      Onsite Interviews

A total of 28 service stations were visited to:

- i)      Verify the data collected by mailed questionnaires and telephone interviews.
- ii)     Identify typical waste management practices.
- iii)    Identify any other concerns or problems of a waste management nature which were not identified during the survey.

The distribution of onsite interviews by SIC is outlined in Table 2.12. Of these, only one of the locations had been previously contacted by telephone and all others had not been contacted prior to the field visit. All of the service stations selected were chosen at random within the Kitchener-Waterloo area provided that two service stations were visited per SIC, as proposed. It should be noted that no SIC 4512 - Helicopter Dealer/Service was included due to the absence of cooperative/available stations in the immediate Kitchener-Waterloo area. Only one location for SIC 5559 and SIC 5926 was contacted during the onsite visits due also to the lack of available and cooperative service stations (from SIC 5559 and 5926) in the Kitchener-Waterloo area. The outcome of the onsite interviews are summarized in Table 2.13.

In reviewing the results of the survey and the follow-up onsite interviews, it was evident that most service stations kept relatively poor records regarding waste quantities and disposal methods. Most businesses could provide "ball park" estimates of waste quantities, at best. The only exception to this would be waste solvents, principally from parts cleaning machines, that were serviced on a regular basis by registered haulers such as Safety Kleen.

Table 2.12  
DISTRIBUTION OF ONSITE INTERVIEWS BY SIC IN THE  
KITCHENER-WATERLOO AREA (Postal Code Region 'N')

SIC	Number of Locations Visited
7542	2
7539	2
7538	2
7536	2
7535	2
7512	2
5926	1
5571	2
5559	1
5541	2
5521	2
5511	2
4512	0
4469	2
3713	2
3594	2
Total	28

---

Some sludges from solvent and caustic tanks were identified as potential waste streams of concern during onsite interviews. These wastes were not addressed in the survey by mail or telephone interview, but are expected to be fairly minimal in quantity forming only a small but undefined percentage of the wastes. Several samples were taken during field visits and are discussed in Section 3.2.4-Waste Classification.

Table 2.13  
OUTCOME OF ONSITE INTERVIEWS AT SELECTED  
SERVICE STATIONS IN THE KITCHENER-WATERLOO AREA

<u>Waste Type</u>	<u>Waste Management Practices Identified During Field Visit</u>
1. Waste Oils	<ul style="list-style-type: none"> <li>- Relatively good records kept of quantities of waste oil especially if hauled by 'registered' hauler</li> <li>- Confirmed that most waste oil is hauled by 'registered' hauler, as per mailout/telephone survey</li> </ul>
2. Interceptor Wastes	<ul style="list-style-type: none"> <li>- Poor records of volumes, either pumped by waste oil hauler or septic cleaning operations</li> </ul>
3. Gasoline Storage Tank Bottoms	<ul style="list-style-type: none"> <li>- No quantities reported, similar to mailout telephone survey</li> <li>- Gasoline supplier usually responsible for tank bottoms</li> </ul>
4. Coolant	<ul style="list-style-type: none"> <li>- Poor records of volumes of waste coolant, usually discharged to sanitary sewer drain</li> <li>- Sludge disposed of at landfill site</li> </ul>
5. Batteries	<ul style="list-style-type: none"> <li>- usually waste battery storage is on-site, and waste batteries are sent to battery reconditioners or scrap dealers</li> </ul>
6. Paint Sludge/Filters	<ul style="list-style-type: none"> <li>- No paint sludge and few filters generated</li> <li>- Paint cans and filters disposed of at landfill sites</li> </ul>
7. Non-halogenated Cleaners, Thinners and Solvents	<ul style="list-style-type: none"> <li>- Small quantities used, usually recycled or disposed of in waste oil tank</li> <li>- Sludge disposed of at landfill sites</li> </ul>
8. Caustic	<ul style="list-style-type: none"> <li>- Applied to radiator shops and engine rebuilding shops, hauled away or neutralized and discharged to sanitary sewer</li> <li>- Sludge disposed of at landfill sites</li> </ul>
9. Halogenated Cleaners	<ul style="list-style-type: none"> <li>- Applied to radiator shops, no disposal method given</li> <li>- Sludge disposed of at landfill sites</li> </ul>

### 3.0 ANALYSIS OF SURVEY DATA

Chapter 3.0 represents a summary and discussion of the data collected during the service station survey.

#### 3.1 Basic Survey Statistics

This section outlines the basic statistics characterizing the service stations contacted during the survey. This includes non-waste related information such as number of employees and fuel sales breakdowns. The statistics are presented in order to provide a general view as to the composition of retail service stations throughout the province. For example more heavily populated postal code regions generally exhibit higher mean employee values and could conceivably generate more waste. Similarly, SIC categories with significantly higher mean populations could be reflected in waste quantities generated. However, because of the high variances associated with many of the mean values, their reliability should be judged carefully.

##### 3.1.1 Number of Employees

The number of full time and part time employees per service station was established during the survey. The average number of full time and part time employees for each geographic region are summarized in Table 3.1. Region 'M' had the highest average of full time employees of 7.63 and Region 'P' had the highest average of part time employees at 1.78 per station surveyed. The average number of full time employees per service station surveyed for all of Ontario was 5.15. Part time employees averaged 1.3 per station surveyed for all of Ontario. Variances are also reported for the mean number of employees calculated. Variances are generally high suggesting the broad distribution in the reported means.

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Table 3.1  
EMPLOYMENT CHARACTERISTICS BY GEOGRAPHIC REGION

<u>Postal Code Region</u>	<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>P</u>	<u>Ontario</u>
<u>Full Time Employees</u>						
Sample Total	44	74	48	90	36	292
Mean	4.39	4.93	7.63	4.11	5.83	5.15
Variance	73.22	78.67	156.32	15.90	99.17	74.09
<u>Part Time Employees</u>						
Sample Total	44	74	48	90	36	292
Mean	0.75	1.38	1.46	1.23	1.78	1.30
Variance	1.35	4.59	3.27	2.50	4.18	3.23

Table 3.2 summarizes employment statistics for all of Ontario for each SIC. The largest full time employer was 'new car stations' (SIC 5511) with an average of 23.64 employees per service station (SIC 5511) surveyed. The lowest full time employer was 'automobile customizing stations' (SIC 3713) with an average of 2.43 employees per station. The largest part time employer was 'helicopter dealers' (SIC 4512) with an average of 6.75 employees and the lowest was 'engine rebuilding stations' (SIC 3594) with an average of .29 part time employees (see Appendix C for regional employment characteristics).

Table 3.2  
EMPLOYMENT CHARACTERISTICS BY STANDARD INDUSTRIAL CODE

SIC	Sample Total	Full Time Employees		Part Time Employees	
		Mean	Variance	Mean	Variance
7542	9	5.00	12.25	3.33	8.25
7539	8	5.38	18.27	0.50	0.57
7538	82	2.88	4.11	1.05	2.34
7536	8	6.00	38.29	0.38	0.27
7535	30	5.00	157.03	0.47	0.81
7512	19	7.84	177.92	1.16	1.36
5926	6	4.17	4.97	1.00	2.40
5571	6	8.00	134.40	1.17	2.57
5559	7	6.14	37.81	1.29	0.90
5541	51	2.73	4.28	2.57	2.81
5521	27	5.22	77.26	0.59	0.94
5511	14	23.64	272.25	0.93	1.76
4512	4	9.25	62.25	6.75	32.25
4469	7	2.71	2.90	1.00	0.67
3713	7	2.43	6.62	0.43	0.29
3594	7	4.71	28.24	0.29	0.57

### 3.1.2 Fuel Sales

Data obtained from the survey regarding fuel sales at each service station is discussed in this section. Each service station was queried as to the percentages of their total fuel sales by fuel type for unleaded, leaded, diesel or propane fuel. For example, one station might sell 60 percent unleaded fuel, 40 percent leaded and 0 percent diesel and propane. The average fuel sales per fuel type, region and for the province are summarized in Table 3.3. The highest mean for unleaded fuel sales was 63.6 percent in region 'L'; for leaded fuel it was 42.6 percent in region 'K'; for diesel fuel it was 12.7 percent for region 'P' for propane fuel the highest mean percentage of sales was 1.6 percent for region 'L'.

Table 3.3  
FUEL SALES BREAKDOWN BY POSTAL CODE REGION

Fuel Type	Postal Code Region					Ontario
	K	L	M	N	P	
Number of Observations	14	22	15	25	13	89
Unleaded	49.4	63.6	63.0	56.2	52.1	57.5
Leaded	42.6	33.5	35.7	31.9	35.1	35.1
Diesel	7.8	1.3	0.7	11.7	12.7	6.8
Propane	0.2	1.6	0.6	0.2	0.1	0.1

Notes: i) Fuel Sales breakdown reported as percent.  
ii) Percentage fuel sales are mean values for the survey.

There were a total of 89 service stations that sold one or more of the four fuel types. Of the 89 service stations selling fuel, 97 percent sold unleaded fuel, 98 percent sold leaded fuel, 27 percent sold diesel fuel and 9 percent sold propane fuel.

Fuel sales are also evaluated for selected SIC categories to provide an indication of the difference between service station type. Fuel sales between SIC categories which had a relatively large number of fuel vendors (7538 and 5541) indicate that the sales breakdowns are similar. SIC categories 7538 and 5541 sold 60.3% and 59.6% unleaded gasoline and 36.8% and 31.3% leaded gasoline, respectively.

### 3.2 Waste Management

The results of the survey which are waste related are discussed in Section 3.2.

#### 3.2.1 Waste Quantities Generated

The waste quantities for the survey were based on the responses obtained from the service station owners/managers during the survey. Throughout, it was found that most of the estimates of wastes produced annually were 'rough' estimates. The majority of service stations did not keep accurate records of wastes produced. Quantities for waste oils and solvents seemed to be better documented, mainly because they were hauled or recycled by a 'registered' hauler. Probably the least accurate waste quantities obtained in the survey

were interceptor wastes and the waste coolant from radiators. Most service stations could not even 'guess' a quantity for either of these wastes. No waste quantities were reported by 95 (32.5%) of the 292 establishments who responded in the survey. Of the 95 reporting no waste quantities, 42 were gasoline service stations (SIC 5541).

### 3.2.1.1 Waste Quantities for Each Standard Industrial Code

All service stations were asked to estimate the quantities of waste produced annually for each of the nine waste types (defined in Table 2.7). These quantities are summarized for each SIC in Table 3.4. All quantities represent the mean waste produced annually from the survey sample for only those businesses reporting to generate waste. Waste quantities were recorded in Imperial gallons, except waste batteries (each) and waste paint/sludge filters (lbs).

Table 3.4  
MEAN ANNUAL WASTE QUANTITIES FOR EACH WASTE TYPE

Waste Type Units		1	2	4	5	6	7	8	9
SIC	Sample	(Igal)	(Igal)	(Igal)	(each)	(lbs)	(Igal)	(Igal)	(Igal)
7542	6	273	456	0	27	0	3	0	0
7539	8	3	4	482	0	13	0	109	38
7538	78	938	11	47	66	0	45	0	0
7536	8	1780	50	15	12	0	189	0	0
7535	16	200	0	1	32	2	34	0	0
7512	8	392	0	18	25	0	48	0	0
5926	6	108	0	0	790	0	24	0	0
5571	6	306	0	8	33	0	38	0	0
5559	6	522	0	0	83	0	30	0	0
5541	9	253	4	17	23	0	12	0	0
5521	13	781	4	13	32	7	13	0	0
5511	14	3671	44	151	78	14	288	0	0
4512	3	103	0	0	1	0	5	0	0
4469	7	107	0	0	54	0	28	0	0
3713	3	0	0	0	1	1	6	0	0
3594	6	471	0	3	3	0	64	107	0

197

Notes: 1. Waste types defined in Table 2.7. SIC codes listed in Table 2.3.

2. Quantities for waste type 3 (tank bottoms) not available from service station owner/operators - see Section 4.2.3 for estimated waste quantities.



New car dealerships (SIC 5511) produced the largest average quantities of waste oils (1), waste paint sludge/filters (6) and non-halogenated waste solvents (7). Radiators shops (SIC 7539) produced the largest average waste quantities of caustic cleaners (8) and halogenated cleaners (9). Generally there were poor responses for waste quantity estimates for interceptor wastes (2), underground gasoline storage tank bottoms (3) and waste paint sludge/filters (6). It should be noted that waste quantities for underground gasoline storage tank bottoms were generally not available from service station operators as these wastes are usually collected by the gasoline suppliers or did not exist. Estimated waste quantities obtained from the Ontario Petroleum Association are discussed in Section 4.2.3. There were very few quantities reported for waste caustic cleaners (8) and halogenated cleaners (9) largely due to the fact that these waste types were only reported by radiator shops (SIC 7539) and engine rebuilding shops (SIC 3594) for which only 8 and 7 service stations were contacted, respectively.

### 3.2.1.2 Waste Quantities for Each Geographic Region

The mean annual waste quantities produced by geographic region are summarized in Table 3.5. The mean annual waste quantities were derived based on the total amount of each waste generated divided by the number of establishments reporting waste quantities for each waste type within a specific postal code region. In reviewing Table 3.5, it is evident that the larger mean waste quantities tend to be from the heavier populated regions 'L', 'M', and 'N'.

Table 3.5  
MEAN ANNUAL WASTE QUANTITIES IN EACH POSTAL CODE REGION  
EACH POSTAL CODE REGION

		<u>Postal Code Region</u>									
		<u>K</u>		<u>L</u>		<u>M</u>		<u>N</u>		<u>P</u>	
<u>Waste Types</u>	<u>Units</u>	<u>Sample Number</u>	<u>Waste Quantity</u>	<u>Sample Number</u>	<u>Waste Quantity</u>	<u>Sample Number</u>	<u>Waste Quantity</u>	<u>Sample Number</u>	<u>Waste Quantity</u>	<u>Sample Number</u>	<u>Waste Quantity</u>
1	Igal	24	720	41	1162	26	2519	53	1040	26	675
2	Igal	2	10	4	675	3	333	6	358	1	500
3	Igal	0	0	0	0	0	0	0	0	1	22
4	Igal	10	73	16	222	13	125	17	289	6	132
5	each	23	196	36	95	23	138	42	89	22	63
6	lbs	1	50	1	200	1	100	3	74	1	10
7	Igal	20	66	35	150	18	115	36	82	21	91
8	Igal	0	0	1	100	0	300	3	240	2	400
9	Igal	0	0	0	0	0	0	1	300	0	0

### 3.2.2 Waste Quantities Stored

All waste generating service stations were asked the quantities of wastes they stored onsite. The mean quantities of wastes stored are summarized by waste type and SIC for the province in Table 3.6.

Table 3.6  
MEAN WASTE QUANTITIES STORED FOR EACH WASTE TYPE

<u>Waste</u>	<u>Type</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<u>Units</u>	<u>      </u>	<u>Igal</u>	<u>Igal</u>	<u>Igal</u>	<u>Igal</u>	<u>each</u>	<u>lbs</u>	<u>Igal</u>	<u>Igal</u>	<u>Igal</u>
SIC	7542	230	1025	*	*	50	*	4	*	*
	7539	20	*	31	*	*	0	*	204	300
	7538	322	350	*	16	25	*	12	*	*
	7536	357	400	*	0	2	*	45	*	*
	7535	300	*	*	0	40	3	8	*	*
	7512	293	*	*	50	32	*	30	*	*
	5926	350	*	*	*	31	*	21	*	*
	5571	180	*	*	8	18	*	15	*	*
	5559	130	*	*	*	37	*	10	*	*
	5541	282	0	0	0	26	*	30	*	*
	5521	204	50	*	1	7	0	4	*	*
	5511	535	40	*	343	6	0	22	*	*
	4512	140	*	*	*	0	*	10	*	*
	4469	48	*	*	*	52	*	11	*	*
	3713	*	*	*	*	5	0	7	*	*
	3594	166	*	*	0	0	*	133	375	*

\* No sample occurrences

Waste oils, waste batteries and waste solvents were stored onsite most frequently. The mean waste quantities stored (Table 3.6) were averages of only those SIC's that stored wastes. Waste oils were usually stored in waste oil tanks. Interceptors wastes were accumulated in the interceptor/separator system until sufficient waste volume was generated to necessitate disposal. There were no quantities of wastewaters from underground gasoline storage tanks reported as being stored. The quantities of waste coolant stored generally represented mean waste coolant quantities that were stored in waste oil tanks. It is possible that this quantity is inaccurate due to some owners/operators refusal to admit to discharging their waste coolant to the sanitary sewer.

Waste batteries were frequently taken to a scrap dealer or picked up by a scrap dealer. However, 2 percent (Table 3.7) of the batteries produced had no specific disposal method

indicated, suggesting the waste batteries likely remained onsite. There was only one SIC (7535) reporting any waste paint sludge/filters being stored onsite. Non-halogenated waste cleaners, solvents were stored onsite by all SIC's except radiator shops (SIC 7539). Most of the waste solvent quantities stored represented quantities from parts cleaning machines that were recycled every 4 to 6 weeks by such firms as Safety Kleen. There were very few occurrences of waste caustic and waste halogenated cleaners reported to be stored (see Appendix C for regional breakdown of waste quantities stored).

### 3.2.3 Disposal Methods and Problems

There were seven disposal methods identified in this survey for service station wastes (Table 3.7). This table also lists the percentages of each waste type disposed of by each disposal method. The majority of waste oils, interceptor wastes, underground gasoline storage tank bottoms waste solvents and waste caustic cleaners were disposed through waste haulers. Conversely, the majority of waste coolant from radiators and waste paint sludge/filters were disposed by, respectively, flushing into sanitary sewers/septic tanks or as municipal solid waste. The only respondent who utilized halogenated cleaners had not yet generated enough spent cleaners to require disposal (see note in Table 3.7).

The largest problem reported during the survey was the cost associated with disposing of some of the wastes. It was found that prior to 1986, most service stations were paid for waste oils. Since about 1986 most service stations must now pay an average of .20¢ per litre to have their waste oils hauled away.

It was also identified that haulers/receivers for certain waste types have close to a monopoly on these services (ie. waste oils). Consequently, a service station operator has little choice in the cost of waste disposal.

The breakdown of service stations reporting waste disposal problems is listed in Table 3.8.

### 3.2.4 Waste Classification

The nine waste types adopted for this survey were classified according to MOE Regulation 309. Some of the wastes were easily categorized within this regulation (ie. waste oils, coolant), while the appropriate waste class was uncertain for other wastes. During onsite interviews, samples were taken to help characterize and class waste coolants, batteries and caustic liquids and sludges. Chemical analyses

TABLE 3.7 SUMMARY OF WASTE DISPOSAL METHODS

WASTE TYPE	SAMPLE TOTAL	WASTE DISPOSAL METHOD (% BY WASTE TYPE)						
		None	Waste Hauler	Reused	Onsite Incineration	Scrap Dealer	Evaporation	Landfill/Sewers/Onsite
1	170	4	76	11	3	1	0	5
2	16	13	69	0	0	0	0	19
3	1	0	100	0	0	0	0	0
4	62	3	16	15	0	2	0	65
5	146	3	1	2	0	90	0	3
6	7	0	0	0	0	0	14	86
7	130	6	68	5	2	1	8	10
8	6	0	67	0	0	0	0	33
9	11	0	0	0	0	0	0	0

## Notes:

1. All values are reported as percent of respondents utilizing each waste disposal method
2. Waste types defined in Table 2.7
3. See Appendix C for breakdown of disposal method by region, waste type and SIC
4. Waste Disposal Method "None" was noted for all respondents who did not dispose of their wastes - These wastes are reportedly stored onsite
5. No disposal method reported for waste type 9 (The single respondent recently switched to halogenated cleaners and had not yet generated sufficient spent cleaners to require disposal)

Table 3.8  
SERVICE STATIONS REPORTING WASTE MANAGEMENT PROBLEMS

Region	# of Waste Generators	Waste Management Problem	
		Yes	% Yes
K	31	5	16
L	50	6	12
M	27	2	7
N	58	3	5
P	<u>31</u>	<u>0</u>	<u>0</u>
Totals	197	16	8

Note: Based on only those service stations which reported generating waste (ie. 197 out of 292 total respondents)

were performed on liquids, and sludges and on leachate generated from the Regulation 309 leach test. Chemical analyses were performed for dissolved metals and cations, as these chemicals were considered the most likely constituents of concern. Although these analyses do not provide a complete characterization of the waste composition, they provide some insight into the waste types which are most likely of environmental concern.

Chemical analysis performed on single grab samples of liquid wastes from 1) a radiator shop (SIC 7539) caustic cleaning tank, 2) an engine rebuilding shop (SIC 3594) caustic liquid cleaning tank, 3) used coolant from radiators, 4) new coolant and 5) battery fluid are summarized in Table 3.9. Used ethylene glycol, radiator shop caustic and engine rebuilding shop caustic are typically disposed of by discharge to the sanitary sewer system. In order to evaluate the chemical analysis for these wastes, the chemical composition was compared to the Regional Municipality of Waterloo by-law for sanitary sewer discharge, which is typical of by-laws throughout Ontario. This comparison shows that all three wastes at full strength (ie. prior to any mixing that may occur upstream of the property line discharge point into the sewer) exceed at least two of the available criteria. The chemicals exceeding the sewer discharge criteria for each waste are summarized as follows:

- i) Waste Coolant (ie. Ethylene Glycol) - lead, phosphorus
- (ii) Waste Radiator Shop Caustic - aluminum, copper,  
lead, phosphorus, zinc
- iii) Waste Engine Rebuilding Shop - aluminum, copper,  
Caustic iron, lead, zinc

PARAMETER	LIQUIDS				SLUDGE		LEACHATE			
	Used Ethylene Glycol (mg/L)	Rad. Shop Caustic (mg/L)	Eng. Shop Caustic (mg/L)	Used Battery Acid (mg/L)	Unused Ethylene Glycol (mg/L)	R.M.O.W. Criteria (a) (mg/L)	Eng. Shop Caustic (mg/L)	Typical Municipal Sludge (c) (mg/L)	Battery Lead (mg/L)	Rad Shop Caustic Sludge x 100 (b) (mg/L)
Aluminium (Al)	7.08	56.9	59.3	18.6	4.36	50	392		<0.15	<0.15
Arsenic (As)	-	-	-	<0.3	<0.3		-		<0.3	<0.3
Barium (Ba)	0.027	0.059	8.35	<0.001	0.054		1.92		0.033	0.78
Beryllium (Be)	<0.03	<0.03	<0.03	<0.003	<0.003		<0.03		<0.003	<0.003
Boron (B)	1310	261	14.5	0.2	1430		17.9		0.025	19.7
Cadmium (Cd)	<0.25	<0.25	0.42	0.082	<0.025	5	5.32	0.33	<0.025	0.049
Calcium (Ca)	2.25	4.49	320	28.1	1.92		3870		1.55	9.61
Chromium (Cr)	<0.3	1.8	11.6	0.12	<0.03	5	53.3	62.87	<0.03	<0.03
Cobalt (Co)	<0.2	<0.2	<0.2	<0.02	<0.02		2.52		<0.02	<0.02
Copper (Cu)	2.66	60.8	32.4	0.26	0.12	5	231	34.28	<0.015	75.6
Iron (Fe)	11.1	1.83	265	14	5.19	50	3620		<0.03	<0.045
Lead (Pb)	27.4	235	291	2.25	<0.08	5	1150	39.75	30.3	11.7
Magnesium (Mg)	0.7	0.47	134	30.4	0.24		1410		0.7	9.89
Manganese (Mn)	0.11	0.05	7.18	0.016	0.047		68.2		<0.003	0.63
Molybdenum (Mo)	2.5	38.3	6.87	<0.04	4.3		11.7		<0.04	0.83
Nickel (Ni)	<0.25	<0.25	0.7	0.064	<0.025	5	11.6	9.15	<0.025	0.045
Phosphorus (P)	308.7	224.6	72	0.13	440.1	100	312.3		<0.13	4.86
Potassium (K)	1170	1560	224	0.4	950		232		0.12	156
Silicon (Si)	32.2	25.8	134	6.2	137.8		74.7		3.98	52.8
Silver (Ag)	<0.3	<0.3	<0.3	0.008	<0.03		<0.3		<0.03	<0.03
Sodium (Na)	†	†	†	288	5280		†		2.33	4170
Strontium (Sr)	0.02	0.02	1.17	0.002	0.037		11.3		0.004	0.16
Titanium (Ti)	<0.06	0.042	0.86	<0.0006	0.049		6.73		<0.0006	<0.0006
Vanadium (V)	<0.1	<0.1	0.18	<0.01	<0.01		0.57		<0.01	<0.01
Zinc (Zn)	1.63	16.9	49.1	0.86	<0.015	5	332		0.076	31.1
pH		11.34	12.1	0.05			12.08			

CONCENTRATIONS PRESENTED IN TABLE REPRESENT THE RESULTS OF CHEMICAL ANALYSIS OF ONE SAMPLE FROM EACH WASTE CATEGORY

- a Regional Municipality of Waterloo Sanitary Sewer By-Law 29-73  
b Ministry of Environment Leachate Quality Criteria from Schedule 4, Regulation 309  
c Canviro Consultants Ltd. (1984)  
† Interference prevented analysis

It should be noted that the samples of caustic were not neutralized during or following sampling. Therefore, they do not necessarily represent the waste caustic discharged to sewers which is reportedly neutralized prior to discharge. Concentrations for these wastes probably represent a worst case. It is apparent that waste coolant and possibly radiator shop caustic and engine rebuilding caustic are not of suitable composition to allow direct discharge to sanitary sewers, as is the current practice, if the combined facility discharge at point of entry to the municipal sewer exceeds applicable sewer use criteria.

Chemical analysis of these same liquids were also compared to the Regulation 309 Leachate Quality Criteria as shown in Table 3.9. Waste coolant, waste radiator shop caustic and waste engine rebuilding caustic should be classified as leachate toxic based on the one analysis of each waste type performed in this study, depending on the management scenario.

Unused ethylene glycol was analyzed (Table 3.9) in order to provide an indication of the change of composition during usage. It is evident that concentrations of several metals are higher in used coolant than in unused coolant. These include copper, iron, lead and zinc.

Chemical analysis of used battery acid, shown in Table 3.9, identifies the presence of several dissolved metals including aluminum, cadmium, chromium, copper, iron, lead, nickel, silver and zinc. These metals are probably attributable to dissolution of the battery core. Used battery acid is classified as a corrosive waste due to a pH of less than 2.0.

A caustic tank sludge (from an engine rebuilding shop-SIC 3594) was also analyzed as shown in Table 3.9. As expected, the results indicated high concentrations of a range of heavy metals. Although no criteria currently exist for sludge composition, some insight to the properties of this sludge can be obtained by comparing this analysis to an analysis of municipal sludge (Table 3.9). It is evident that the caustic sludge exceeds typical municipal sludge compositions for cadmium, copper and lead. Unusually high concentrations of zinc and molybdenum were also reported.

Two potentially hazardous solid wastes were submitted for leach tests according to the Regulation 309 protocol. These samples were radiator shop caustic sludge and a core from a typical automobile battery. The leachate test on the battery was completed to attempt to simulate the fate and possible effects of waste batteries that are disposed and eventually crushed (ie. at wreckers or at municipal landfills).

It should be noted that the used battery was drained, cut into pieces and the casing material removed prior to analysis in order to provide a representative sample of the battery core.

The caustic sludge was submitted for a leach test since the disposal method used for caustic sludge was typically municipal landfill. The sludge was allowed to dry for several days prior to analysis to simulate the disposal practices of the radiator shops contacted.

Analysis of leachate generated for these wastes is shown in Table 3.9 along with the Schedule 4 Leachate Quality Criteria from Regulation 309. Wastes from which leachate exceeds 100 times the Schedule 4 criteria are considered as hazardous materials and should be disposed as such. Based on the Schedule 4 criteria for lead, both radiator shop caustic sludge and used battery cores should be considered as hazardous wastes and disposed of at a hazardous waste facility.

The resulting classification under MOE Regulation 309 of all waste types from the survey are summarized in Table 3.10. Some waste classes were assigned based on discussions with Ministry personnel and were not verified by chemical analysis.

These include the waste classes for:

- i) paint sludge, paint overspray and spray booth filters
- ii) sludge from non-halogenated cleaners, thinners, and solvents
- iii) sludge from halogenated cleaners.

#### 3.2.5 Waste Haulers

There were 27 waste haulers identified during the survey (these are listed in Appendix F). Waste haulers were used for disposing of most of the waste oils, interceptor wastes, wastewater from gasoline storage tanks, waste solvents and waste caustic cleaners identified in this study. Approximately 44 percent of the 197 retail service stations responding with waste quantities had written agreements with waste haulers (see Table 3.11). These written agreements were only for hauling waste oils and solvents. No written agreements were reported for the disposal of other waste (ie. batteries, caustics, sludges, etc.). Region 'M' had the highest hauler agreement percentage of 56 and Region 'P' had the lowest at 19 percent (see Table 3.11). The percentages of service stations in Ontario generating waste that had a waste hauler agreement is summarized in Table 3.12 by SIC.



Table 3.10  
WASTE CLASSIFICATION

Waste Type	Possible Waste Class	Comments/Waste Class Description
1) Waste oil from oil changes and/or transmission fluid.	252 T/L	<ul style="list-style-type: none"> <li>- Oily waste</li> <li>- Waste crankcase oils &amp; lubricants</li> <li>- Small quantity exemption probably not applicable due to waste quantity</li> </ul>
2) Interceptor Wastes (Oil/Sludge/Water)	251 T/L	<ul style="list-style-type: none"> <li>- Oily waste - Waste oils/sludges (petroleum-based)</li> <li>- Small quantity exemption probably not applicable due to waste quantity</li> <li>- Waste characteristic assigned on assumption that waste will fail slump test</li> </ul>
3) Gasoline storage tank bottoms		<ul style="list-style-type: none"> <li>- Fuels (light fuel)</li> <li>- Small quantity exemption may apply</li> </ul>
a) Liquids	221 H/I/T/L	<ul style="list-style-type: none"> <li>- Waste characteristic assigned on assumption that waste includes gasoline (for 221 I)</li> </ul>
b) Sludges	221 H/I/T/L/R	<ul style="list-style-type: none"> <li>- Waste class assigned based on PACE (1986)</li> <li>- Small quantity exemption may apply</li> </ul>
4) Coolant from Radiators	212 L/T*	<ul style="list-style-type: none"> <li>- Non-halogenated spent solvent (glycol)</li> <li>- Aliphatic solvents and residues</li> <li>- Waste class 212 L exempt from generator registration if effluent is discharged to sanitary sewers</li> <li>- Waste class 212T requires generator registration for discharge to sanitary sewers as determined in effluent at the property line</li> <li>- All discharges must satisfy municipal by-laws</li> <li>- Small quantity exemption not likely applicable because of volumes</li> </ul>
5) Used Batteries:		
a) Spent acid solution	112C*	<ul style="list-style-type: none"> <li>- Acid solutions, sludges and residues containing heavy metals</li> <li>- Waste characteristic based on pH &lt;2.0</li> <li>- Small quantity exemption may apply</li> </ul>
b) Battery core (minus case)	146T*	<ul style="list-style-type: none"> <li>- Waste characteristic assigned on basis of lead levels in leachate greater than 100 times Schedule 4 criteria</li> <li>- Small quantity exemption probably not applicable</li> </ul>

\* Waste class verified by chemical analysis of one waste sample.

Legend: H = Hazardous Industrial Waste  
I = Ignitable Waste  
C = Corrosive Waste  
R = Reactive Waste  
T = Leachate Toxic Waste  
L = Liquid Industrial Waste

Note: Small quantity exemption = 25 L/month for waste characteristic L  
= 5 kg/month for waste characteristics H,I,C,R,T

Table 3.10  
(Continued)

Waste Type	Possible Waste Class	Comments/Waste Class Description
6) Paint sludge/Paint overspray/Spray booth filters	145 H/I/T/L/N	<ul style="list-style-type: none"> <li>- Miscellaneous organic wastes and mixed wastes</li> <li>- Wastes from the use of paints, pigments and coatings</li> <li>- Small quantity exemption may apply</li> <li>- Solvent based paint 145 H/I/T/L</li> <li>- Water based paint 145 L or T</li> <li>- Sludges and filters 145 H/I/T/L/N</li> </ul>
7) Non-halogenated cleaners, thinners and solvents:		<ul style="list-style-type: none"> <li>- Non-halogenated spent solvents = 211</li> <li>- Aromatic solvents and residues, 213 - Petroleum distillates</li> </ul>
a) Liquids	211 H/I 212 H/I 213 H/I	<ul style="list-style-type: none"> <li>- Small quantity exemption may apply</li> <li>- Waste characteristic assigned on basis of pure compounds and Schedule 1 solvent list</li> </ul>
b) Sludge	211 H/I/T/L 212 H/I/T/L 213 H/I/T/L	<ul style="list-style-type: none"> <li>- Same as 7(a)</li> <li>- Small quantity exemption likely applies</li> </ul>
8) Caustic Agents:		
a) Liquids **	121 C/T*/L or 122 C/T*/L	<ul style="list-style-type: none"> <li>- Alkaline solutions, sludges and residues containing heavy metals</li> <li>- Small quantity exemption may apply</li> <li>- Waste class 212 L exempt from generator registration if effluent is discharged to sanitary sewers</li> <li>- Waste class 212T requires generator registration for discharge to sanitary sewers as determined in effluent at the property line</li> <li>- All discharges must satisfy municipal by-laws</li> </ul>
b) Sludge **	121 C/T*/L or 122 C/T*/L	<ul style="list-style-type: none"> <li>- Same waste class as 8(a)</li> <li>- Small quantity exemption likely applies</li> <li>- Waste characteristic assigned on basis of lead levels in leachate greater than 100 times Schedule 4 criteria</li> </ul>
c) Neutralized Liquids/Sludges **	131 T/L or 132 T/L	
9) Halogenated Cleaner		
a) Liquids:	241 H/I	<ul style="list-style-type: none"> <li>- Halogenated solvents and residues</li> <li>- Small quantity exemption may apply</li> <li>- Waste characteristic assigned on basis of pure compounds</li> </ul>
b) Sludge	241 H/I	<ul style="list-style-type: none"> <li>- Same as 9(a)</li> <li>- Waste characteristic assumed - not verified by chemical analysis</li> <li>- small quantity exemption likely applies</li> </ul>

\* Waste class verified by chemical analysis of one waste sample.

\*\* Waste class depends on presence/absence of heavy metals

Legend: H = Hazardous Industrial Waste  
I = Ignitable Waste  
C = Corrosive Waste  
R = Reactive Waste  
T = Leachate Toxic Waste  
L = Liquid Industrial Waste

Note: Small quantity exemption = 25 L/month for waste characteristic L  
= 5 kg/month for waste characteristics H,I,C,R,T

Table 3.11  
SERVICE STATIONS POSSESSING A WRITTEN  
WASTE HAULER AGREEMENT

Postal Code Region	No. of Waste Generators	Waste Agreement	
		Yes	% Yes
K	31	15	48
L	50	25	50
M	27	15	56
N	58	26	45
P	31	6	19
Totals	197	87	44

Table 3.12  
SUMMARY OF SURVEYED WASTE GENERATORS WITH WRITTEN  
WASTE HAULER AGREEMENTS BY SIC

SIC	Sample Total	Waste Generators with Hauler Agreements	
		No.	%
7542	6	0	0
7539	8	2	25
7538	78	37	47
7536	8	6	75
7535	16	4	25
7512	8	4	50
5926	6	1	17
5571	6	1	17
5559	6	3	50
5541	9	9	100
5521	13	7	54
5511	14	13	93
4512	3	0	0
4469	7	1	14
3713	3	0	0
3594	6	1	17
Totals	197	89	45

## 4.0           EXTRAPOLATION OF WASTE DATA TO ONTARIO

### 4.1           Extrapolation of Survey Data

#### 4.1.1       Extrapolation Procedure

The extrapolation procedure adopted to estimate province wide waste generation was a simple linear extrapolation which was performed for each SIC and each waste type (1 to 9). The estimated waste quantity generated for a particular waste type was determined for each SIC category as follows:

$$Q_{i,j} = q_{i,j} \quad N_j$$

$Q_{i,j}$  = total waste generation of waste type  $i$  in SIC category  $j$

$q_{i,j}$  = mean waste generation of  $n_j$  service stations of waste type  $i$  in SIC category  $j$  (from survey)

$N_j$  = total number of service stations in Ontario in SIC category  $j$

$n_j$  = number of service stations in survey in SIC category  $j$

The province wide estimates of waste generation for a selected waste type was determined as follows:

$$Q_i = \sum_{j=1}^{n_{sic}} Q_{i,j}$$

$Q_i$  = total waste generation of waste type  $i$

$n_{sic}$  = number of SIC categories in survey.

Prior to extrapolation, the inventory of service stations within each SIC category was modified to account for duplication. The R.L. Polk listing provided a breakdown of the number of service stations listed under each SIC category. However, a service station was possibly counted more than once depending on the nature of its business. The listing identified 28,520 SIC counts for service stations which fell into the SIC categories of interest to this study and provided a breakdown of the number of service stations in each category. However, a total of only 17,590 individual service stations exist. Therefore, the breakdown of service stations in each SIC as shown in Table 2.3 needed to be corrected to reflect the reported total of 17,590. This was necessary in order to avoid overestimating the quantities of waste generated province wide.

Population Estimate A, which sums up to 17,590 is shown in Table 4.1 for each SIC category. The methodology utilized to obtain this population breakdown is discussed in detail in Appendix G. The estimated overlap is also reported as a percent in Table 4.1 to provide an indication of the degree of overlap for each SIC category.

Table 4.1  
ESTIMATED POPULATIONS FOR EXTRAPOLATIONS

SIC	SIC Definitions and Codes	Counts Including Overlap (R.L.Polk)	Sample Total	Overlap (%)	Popul. Est. A	Popul. Est. B
7542	Car Washing & Polishing	825	9	49	477	413
7539	Radiators Automotive	655	8	48	387	335
7538	Automobile Repairing & Service	9,100	82	45	5,671	4,913
7536	Transmission Automotive	735	8	77	187	162
7535	Automobile Repairing & Painting	3,250	30	17	3,030	2,625
7512	Automobile Renting & Leasing	2,175	19	49	1,238	1,073
5926	Batteries Storage Retail	215	6	0	215	186
5571	Motorcycle Dealers	390	6	53	205	178
5559	Snowmobiles	485	7	51	268	232
5541	Service Stations Gasoline	5,585	51	60	2,545	2,204
5521	Automobile Dealers Used	2,825	27	66	1,092	946
5512	Automobile Dealers New	1,385	14	11	1,380	1,196
4512	Helicopter Dealers	25	4	0	25	22
4469	Marine Motor Dealers	545	7	0	545	472
3713	Automobile Customizing	110	7	0	110	95
3594	Engines Rebuilding & Exchanging	215	7	0	215	186
	Totals	28,520	292		17,590	15,238

Note: (i) See Appendix G for calculation of population estimates

A second population estimate (B) was also developed for use in extrapolating waste quantities. This population was developed based on the rationale that 13.37% of the addresses provided in the Polk listing were incorrect as discussed in Section 2.3.1. Therefore, the total reported population of 17,590 was reduced by 13.37% and the redistributed populations for each SIC were calculated as shown in Table 4.1. This population reduction estimate assumes that 13.37% of the total population of businesses are no longer in existence whether these businesses have only moved or not. As such, population estimate B should be considered a lower limit.

Waste quantities were extrapolated based on population estimates A and B (Table 4.1). The resulting waste quantities are discussed in Section 4.1.2.

#### 4.1.2 Estimated Waste Quantities

Mean waste quantities determined from the survey data were extrapolated using the procedure discussed in Section 4.1.1. These estimated waste quantities are summarized in Table 4.2. In reviewing this table, the volume of waste oil (12.0 to 13.8 million Igal/year) far exceeds other estimated waste volumes. Non-halogenated solvents are second in total volume and are estimated at 823,000 to 950,000 Igal/year. The estimated number of waste batteries is 820,000 to 947,000. Quantities for paint sludge/filters and halogenated solvents are relatively small compared to other wastes.

Table 4.2  
ESTIMATED QUANTITIES FOR ONTARIO

Waste Type	Units	<u>Estimated Quantity</u>	
		(A)	(B)
1. Waste Oil	Igal	13,828,268	11,981,379
2. Interceptor Wastes	Igal	366,285	317,231
3. Gasoline Storage Tank Bottom*	Igal	-	-
4. Waste Coolant	Igal	750,159	649,824
5. Batteries	each	947,014	820,236
6. Paint Sludge/Filters	lbs	40,070	34,716
7. Non-halogenated Waste Solvent, Thinners & Cleaners	Igal	949,502	822,713
8. Waste Caustic	Igal	65,122	56,360
9. Halogenated Waste Cleaners	Igal	14,513	12,563

\* Waste type 3 quantities not calculated due to insufficient survey data.

##### 4.1.2.1 Type of Business

Quantities for all waste types were extrapolated by SIC for all of Ontario as shown in Table 4.3. These extrapolations were based on the survey results for each SIC as discussed in Chapter 3.0. Based on the estimates, the largest producers of waste oils, coolant, batteries and non-halogenated solvents were general repair shops (SIC 7538) and new car dealers (SIC 5511). SIC 7538 had the greatest number of

TABLE 4.3 ESTIMATED WASTE QUANTITIES FOR EACH SIC CATEGORY

WASTE TYPE	1		2		3		4		5		6		7		8		9	
UNITS	Igal		Igal		Igal		Igal		each		lbs		Igal		Igal		Igal	
SIC	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
7542	130380	112887	217300	188144	0	0	0	0	17720	11013	0	0	1272	1101	0	0	0	0
7539	968	838	1451	1756	0	0	186728	161638	0	0	4838	4188	0	0	42086	36431	14513	17563
7538	5320850	4609652	63626	55121	0	0	266468	230851	377972	323120	0	0	257131	222763	0	0	0	0
7536	332860	288360	9350	8100	0	0	2805	2430	7291	1985	0	0	35390	30659	0	0	30659	0
7533	606000	525000	0	0	0	0	2424	2100	96960	84000	7272	6300	102010	88375	0	0	0	0
7512	485426	420729	0	0	0	0	21763	18862	30885	26769	0	0	59945	51956	0	0	0	0
5926	23292	20150	0	0	0	0	0	0	169850	146940	0	0	5160	4464	0	0	0	0
5571	62798	54527	0	0	0	0	1708	1483	6833	5933	0	0	7858	6823	0	0	0	0
5559	139934	121137	0	0	0	0	0	0	22206	19223	0	0	7925	6861	0	0	0	0
5541	643735	557482	9980	8643	0	0	43914	38030	59483	51513	0	0	31289	27096	0	0	0	0
5521	855216	739141	4449	3854	0	0	14641	12683	35065	30377	8089	7007	14277	12388	0	0	0	0
5511	5066571	4391029	60129	52111	0	0	208971	181109	107640	93288	19714	17086	397144	344192	0	0	0	0
4512	2563	2255	0	0	0	0	0	0	19	17	0	0	125	110	0	0	0	0
4469	58471	50639	0	0	0	0	0	0	29274	25353	0	0	15494	13418	0	0	0	0
3713	0	0	0	0	0	0	0	0	79	68	157	136	660	570	0	0	0	0
3594	101204	87553	0	0	0	0	737	638	737	638	0	0	13821	11957	22036	19929	0	0
Totals	13,828,268	11,981,379	366,285	317,231	0	0	750,159	649,824	947,014	820,236	40,070	34,716	949,502	822,713	65,122	56,360	14,513	12,563

Notes:

1. Population estimate calculations shown in Appendix 6
2. Extrapolation not performed for waste type 3 due to insufficient survey data

No other sources of waste quantity information were obtained for this waste.

#### 4.3.4 Waste Coolant

The high and low estimates of waste coolants produced by retail service stations annually from the survey were 750,159 and 649,824 lgal. No estimates of annual quantities of waste coolant produced by retail service stations was obtained from waste receivers or other contacts. The reliability of these waste generation estimates is questionable due to the uncertainty in quantities obtained during the survey.

#### 4.3.5 Waste Batteries

There were no waste battery quantity estimates from waste receivers for Ontario. This is due mainly to the fact that most waste batteries either were stored onsite or went to local wrecking or scrap yards. CANVIRO's high and low estimates of waste batteries produced annually in Ontario by retail service stations were 947,014 and 820,236.

From the survey, most service stations with waste batteries did respond with a quantity of waste batteries produced per year. Therefore, these estimated quantities are considered relatively accurate.

#### 4.3.6 Waste Paint Sludge/Filters

The estimated quantities of paint sludge/filters from the survey extrapolation were 40,070 and 34,716 pounds/year. It was difficult to obtain quantities for this waste type from retail service stations (primarily paint and body shops, SIC 7535 and new car dealerships SIC 5511). Most shops replied having little if any waste paint sludge/filters. The survey identified that there was very little leftover paint and the number of waste paint filters was typically kept down by cleaning and reusing old filters. Any paint sludge was usually still in an old paint container and was disposed of as municipal waste as were paint filters. Estimated quantities for this waste are of questionable reliability due to poor records of waste generation. No estimates of waste paint sludge/filters were obtained from any waste receiver.

#### 4.3.7 Non-Halogenated Waste Cleaners, Thinners and Solvents

One waste receiving company's estimate of waste cleaners, thinners and solvents collected by them, from Ontario was 744,000 gallons per year. CANVIRO's estimates of this waste quantity were 949,502 to 822,713 lgal. CANVIRO (1988) estimated approximately 900,000 lgal/year for spent solvents.



These estimated waste quantities compare well with the calculated upper limit of 1,550,000 lgal/year suggesting that the estimated generation rates are fairly reliable. The majority of the waste solvents etc., from the survey were recycled. The waste receiver which collected the majority of waste solvents in Ontario (744,000 gallons), recycled the solvents through their U.S. operations.

#### 4.3.8 Waste Caustic Cleaners

There were no waste caustic cleaner quantity estimates for Ontario from waste receivers. CANVIRO's estimated high and low waste quantities were 65,122 gallons and 56,360 gallons. This waste type was found to be produced by SIC's 3594 (engine rebuilding shops) and SIC 7539 (radiator shops) and used primarily for cleaning engines or radiators. Waste quantities reported are not considered reliable due to poor waste generation records for this waste type.

#### 4.3.9 Halogenated Waste Cleaners

CANVIRO's estimates of waste quantities for cleaners (halogenated) produced by retail service stations in Ontario were 14,513 and 12,563 lgal. Again, there were no waste quantities from any receivers. This waste type was found only at SIC 7539, radiator shops. However, many operators were not able to distinguish between halogenated or non-halogenated solvents or could not provide sufficient information for the CANVIRO representative to determine this distinction. Waste quantities for this waste type are not considered to be accurate.

The estimated quantities of waste produced annually from retail motor vehicle service stations were discussed in Chapters 3 and 4. Chapter 5 involves a discussion of the current waste management practices employed by service stations in Ontario and the possible environmental impacts.

### 5.1 Waste Oils

Waste oils appeared to be better managed than any other wastes generated by retail service stations in Ontario. Most service stations had onsite waste oil storage tanks with waste volume storage capacity ranging from one month to two years. The stations having storage tanks usually disposed of the waste oil through a waste oil hauler. From the survey, 94 percent of the waste oils produced annually in Ontario were picked up by a waste hauler. The majority of these wastes are believed to be re-refined although some waste haulers were reported to use waste oil for dust suppression on roads.

Of the remaining 6 percent of waste oil not picked up by a hauler, 2 percent was added to heating oil or other fuel and incinerated, 2 percent was reused for purposes such as undercoating, 1 percent was disposed of as either municipal waste or for onsite dust suppression and 1 percent reported no disposal method. Of the reported waste disposal methods for waste oil, the oil disposed of as municipal waste or for onsite dust suppression and that for which no disposal method was reported are of greatest concern in terms of potential adverse environmental impacts. An upper limit of 138,300 lgal of waste oil may be disposed at municipal landfills across Ontario (the breakdown between oil disposed as municipal waste and that used for onsite dust suppression was not determined due to the low percentage of the total waste oil). An equivalent quantity is reported as having no waste disposal method. Waste oils which are used as fuel supplements may also be of concern due to air emissions arising from incomplete combustion.

### 5.2 Interceptor Wastes

Waste liquids, oils and sludge quantities from interceptors and separators were found to be difficult to quantify. Most service station operators found it difficult to even estimate an annual quantity of waste produced from their interceptors.

As a result, the estimated quantities of waste generated vary somewhat and are not considered to be very accurate. Regardless, it was found that 97% of these underground separators/interceptors were pumped out by either a waste oil hauler or a septic tank cleaning service. This suggests that although the quantities generated for this waste may not be reliable, it appears that most service stations have their interceptor wastes hauled away for disposal. However, it is presently unknown whether the waste haulers are "Ministry Approved Carriers". Furthermore, only 44% of waste generators possessed written agreements with waste haulers. Therefore, compliance with Regulation 309 exemption criteria cannot be fully assessed based on available data.

The ultimate fate of interceptor wastes was investigated to determine what adverse environmental impacts may be associated with this waste. Contact with Can Am (1987) who operate a wastewater treatment facility which accepts interceptor wastes, reported that the approximately 1.0% by volume of waste oil exists in interceptors is re-refined. The sludge, which was not quantified, is "solidified" and disposed of at a municipal landfill. The majority of the interceptor wastes is water which is pretreated prior to discharge to sanitary sewers. Based on contact with waste receivers during this study, it would appear that interceptor wastes collected by waste haulers are generally disposed of in the manner discussed above.

The ultimate fate of interceptor wastes collected by septic tank cleaning services was not determined as part of this study due to the numerous small companies who provide this service.

### 5.3 Gasoline Storage Tank Bottoms

Most service stations with gasoline storage tanks who were contacted during the survey reported they either did not have any wastewaters from their storage tanks or they did not know the quantities generated. The wastewaters or tank bottoms from underground gasoline storage tanks were usually pumped by the gasoline supplier. Contact with the Ontario Petroleum Association revealed that their member organizations transfer recovered tank bottoms to either a bulk storage site for eventual re-refining or else directly to the refinery. At the refinery the gasoline is reprocessed and the wastewater is treated prior to discharge.

The practices of non-OPA member gas suppliers was not identified during this study although it is assumed that similar practices are followed. Also, tank bottom quantities produced by non-OPA members are probably only a fraction of the OPA quantities reported in this study due to the smaller market share.

It is concluded that tank bottoms from gasoline storage tanks appear to be well managed and pose little threat to the environment.

#### 5.4 Waste Coolant

Approximately 77 percent of the waste coolant from radiators was disposed of to the sanitary sewer systems throughout Ontario. This amounts to an estimated 500,365 to 577,622 lgal of waste coolant. However, the estimated quantities of waste coolant from retail service stations for Ontario was considered to be low due to several stations not responding with a quantity of waste coolant simply because they had 'no idea' how much they produced in a year. Ethylene glycol (coolant/ antifreeze) has been found to be highly biodegradable in a biological or physical/chemical treatment system (Union Carbide, 1985) and should be effectively treated at municipal sewage treatment plants. However, from the chemical analysis results, the heavy metals associated with used coolant are of concern. Concentrations in the one waste coolant sample analyzed exceeded typical sanitary sewer discharge criteria for lead and phosphorus, suggesting that waste coolant may not be suitable for direct discharge to sanitary sewers. This waste was also leachate toxic. Waste coolant may not be subject to the generator registration and manifesting requirements of Regulation 309 in this case because of the Motor Vehicle Service Station exemption for offsite management. This exemption applies only if the service station has a contract with an approved waste carrier. Currently, the waste coolant may or may not need to be registered (based on leachate toxicity and management scenario). Results of this study suggest that the current management practices for this waste should be re-examined.

#### 5.5 Waste Batteries

The estimated quantities of waste batteries produced in Ontario 820,236 to 947,014 is considered to be reasonably accurate. Waste batteries produced by retail service stations in Ontario were generally disposed of to scrap dealers (93 percent) where they were likely recycled and the lead contents reused. (This was not confirmed as part of this study) However, approximately 2 percent (16,405 to 18,940) of waste batteries were reportedly not disposed of in any manner (ie. they are probably stored onsite). Another 3 percent (24,607 to 28,410) were disposed to a garbage receiving facility (ie. municipal landfill). The remaining 2 percent are picked up by a waste hauler presumably for recycling. The leach test results from the core of a battery indicate that under MOE Regulation 309, they would probably be classed as 'Leachate Toxic Waste', with class number 146T. This was based on the leachate being 100 times the Regulation 309, Schedule 4 concentration for lead. The liquid contents of the battery are

classified as 112C. Therefore, both the battery core and liquid contents are hazardous wastes and should be disposed of as such. Current waste disposal practices identified in this study suggest that batteries are usually accepted by scrap dealers presumably for recycling. At present, wastes which are "wholly" utilized in a recycling process are exempt from all Reg. 309 requirements. As such, no written agreement with a waste hauler is necessary, explaining the low number of written agreements reported for this waste. The most common battery disposal method is considered acceptable presuming that all scrap dealers recycle all batteries. The management and fate of these wastes by scrap metal dealers should be examined to ensure that any adverse environmental impacts are minimized.

Of greater concern are the 5% (41,012 to 47,351) of batteries that are either disposed at the municipal landfill or stored onsite.

#### 5.6 Waste Paint Sludge/Filters

The reported quantity of waste paint sludge/filters identified in the survey is thought to be low. All (ie. 100 percent) of the waste paint sludge/filters were disposed as municipal waste. This amounts to 34,716 to 40,070 pounds/year, which includes paint sludge in old paint cans and waste filters. MOE policy to date differentiates between solvent and water based paints. Solvent based paint waste (sludge/filters) is classified as either 145 H/I/T/L/N under Reg. 309. Water based paint waste (sludge/filters/overspray) is classified as 145 T/L/N depending on the presence of metals and results of the slump test. However, these classifications were not verified by chemical analysis. Although small quantity exemptions may apply to many smaller auto body shops or other waste generators, the classification of various types of paint sludges and filters should be verified through chemical analysis and the management of these wastes assessed on the basis of this additional information.

#### 5.7 Non-Halogenated Waste Cleaners, Thinners and Solvents

The quantities of waste solvents produced by retail service stations are thought to be reasonably accurate. Approximately 88 percent of the waste solvents produced (822,713 to 949,502 lgal) are disposed via a waste hauler for subsequent recycling. Of the remaining waste solvents, the 1 percent (8227 to 9495 lgal) disposed of to a scrap dealer and the 4 percent (32,909 to 37,980) disposed of as municipal waste or dumped onsite are of greatest concern from an environmental perspective. Air emissions from disposal as a fuel supplement (1%) and by evaporation (2%) may also be a concern although the

potential for serious environmental consequences is undocumented. Waste solvents are classified as Hazardous Industrial Waste if they are included in the Schedule 1 list of industrial waste streams (211 H, 212 H, or 213 H) under MOE Regulation 309.

Sludges from non-halogenated cleaners, such as residue from parts cleaners, is a waste stream which may have an adverse environmental effect due to current waste disposal practice. This waste, which was not quantified as part of this study, is currently disposed of as a municipal waste. The appropriate classification and disposal method for this waste should be determined as a follow up to this study.

#### 5.8 Waste Caustic

The quantities of waste caustic cleaners produced by retail service stations was found to be fairly low. There were a total of 6 service stations reporting to have waste caustic out of 292 total. All responses were either from radiator shops (SIC 7535) or engine rebuilding shops (SIC 3594). About 67 percent of the waste caustic produced (18,599 to 43,632 lgal) was disposed via a waste hauler. The other 23 percent was discharged to sanitary sewers reportedly following neutralization. The waste caustic dumped to sanitary sewers may be of concern due to the high heavy metal concentrations associated with this type of waste which exceeds typical criteria for sanitary sewer discharge and is leachate toxic. It should be noted that chemical analysis were performed on un-neutralized samples. These observations suggest that waste caustic is not appropriate for direct discharge to sanitary sewer. The composition of waste caustics should be examined in greater detail relative to sewer discharge criteria and the fate of dissolved metals in sewage treatment plants to ensure that current waste management practices are adequate.

The caustic sludge from caustic tanks was identified as a potential waste of concern. Analytical results indicate that this waste could be corrosive or leachate toxic (or both). Under these circumstances, it likely requires management as a hazardous waste. However, this sludge is reportedly disposed of as municipal waste. It should be noted that any service stations producing waste caustic sludge probably qualify for the 5 kg/month small quantity exemption for caustic tank sludge.

#### 5.9 Halogenated Waste Cleaners

There was only one retail service station responding to having halogenated waste cleaners out of the 292 service stations surveyed. This was thought to be a low number of responses for this waste type. This suggests that extrapolated waste quantities are an underestimate of the actual waste generation.

Although no chemical analyses were completed for this waste type, halogenated waste cleaners are classified as a Hazardous Industrial Waste (241H) and should be disposed of as a hazardous waste although small quantity exemptions may apply. No waste disposal method was reported by the one respondent who generated this waste.

Sludges from halogenated cleaners were also identified as a waste stream although the quantity generated is expected to be a small fraction of liquid waste volume. The amount of sludge generated is currently unquantified. It was reported that waste sludge is disposed of as municipal waste. Although small quantity exemptions probably apply to this waste, disposal as municipal waste is not suitable. Waste disposal practices for this waste should be reviewed and appropriate guidelines developed.

It is concluded that guidelines should be developed for the management of spent halogenated cleaners and sludge.

The following conclusions were reached with regard to the waste management practices of service stations in Ontario:

- o Inconsistencies in the province wide inventory of service stations, the small sample size, biases introduced during the survey and an inability to verify the waste quantity extrapolations limits the reliability of the waste quantities reported in this study.
- o The reliability of waste quantities generated by retail service stations in Ontario varied by waste type. Estimated quantities of greatest reliability are:

<u>Waste Type</u>	<u>Waste Quantity</u>	
	<u>Imperial Units</u>	<u>S.I. Units</u>
1. Waste Oil	12.0 to 13.9 million Igal/yr	54.6 to 63.3 million litres/yr
5. Used Batteries	820,000 to 947,000 batteries/yr	820,000 to 947,000 batteries/year
7. Non-Halogenated Cleaners, Thinners, Solvents	823,000 to 950,000 Igal/yr	3.7 to 4.3 million litres/yr

Estimated waste quantities of uncertain reliability are:

<u>Waste Type</u>	<u>Waste Quantity</u>	
	<u>Imperial Units</u>	<u>S.I. Units</u>
2. Interceptor Wastes	317,000 to 366,000 Igal/yr	1.4 to 1.7 million litres/yr
3. Gasoline Storage Tank Bottoms	15,400 Igal/yr	70,000 litres/yr
4. Waste Coolant	650,000 to 750,000 Igal/yr	3.0 to 3.4 million litres/yr
6. Paint Sludge/ Filters	34,700 to 40,000 lbs/yr	15,700 to 18,200 kg/yr
8. Waste Caustic	56,400 to 65,100 Igal/yr	256,000 to 296,000 litres/yr
9. Halogenated Cleaners	12,600 to 14,500 Igal/yr	57,300 to 65,900 litres/yr



- o Most service stations do not keep good records of waste quantities and disposal practices
- o Of those service stations that reported producing waste, 44 percent had written waste hauler agreements
- o The high cost of waste disposal was the most frequent waste management problem identified
- o The majority of service stations producing waste oil and interceptor wastes have written agreements with waste haulers and therefore satisfy the Regulation 309 exemption criteria assuming the hauler is a "Ministry Approved Carrier". These wastes appear to be disposed of in an environmentally sound manner. The 1 percent of waste oil disposed of either as municipal waste or onsite and the 1 percent for which no disposal method was reported may have an adverse environmental impact.
- o Gasoline storage tank bottoms are usually disposed of in an environmentally secure manner by the gasoline supplier although no written waste hauler agreements were reported for this waste.
- o The current practice of discharging waste coolant to sanitary sewers at 77% of service stations surveyed may be inadequate as chemical analysis found that the discharge to sewer of this waste may violate sanitary sewer discharge criteria.
- o Current disposal practices for most (95%) of used batteries are satisfactory presuming that all scrap dealers collect batteries for reclaiming. Based on the corrosivity of the battery acid and leaching test results from the battery core it appears that batteries qualify as a hazardous waste. However, management of batteries by a reclaiming facility is appropriate with or without a written agreement with a waste hauler. Therefore, the low number of written agreements reported is not surprising.
- o The present practice of disposing of all (100%) waste paint sludge filters/sludge as municipal waste should be verified and possible environmental impacts studied.
- o Most (92%) non-halogenated solvents, thinners and cleaners appear to be well managed although written agreements with waste haulers only exist for a portion of the service stations surveyed. A small

portion of these wastes which are disposed of as municipal waste or onsite (4%) and at scrap dealers (1%) are of concern from an environmental perspective.

- o The majority of waste caustic (77%) appears to be disposed of by waste haulers although few written waste hauler agreements were reported. The remaining 23% of waste caustic, which is discharged to the sanitary sewer, may be unsuitable for sewer discharge, particularly if not neutralized prior to discharge.
- o The single service station producing waste halogenated cleaners did not have a waste hauler agreement or report a waste disposal method for this waste.
- o Waste sludges from caustic cleaning tanks were found to be leachate toxic and may also be corrosive. These wastes typically meet the small quantity exemption criteria and generator registration is unnecessary. These wastes are currently disposed of as municipal waste.
- o Waste sludges from non-halogenated and halogenated solvents are currently disposed of as municipal waste. These wastes typically meet the small quantity exemption criteria and generator registration is unnecessary.

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Maps.

Appendix A

Example of R.L. Polk Listing



B. J. HUNTER DIRECTORIES  
ASSORTED LISTS FOR ORDER # 2801 - ONTARIO

TIME- 21.56.36

DATE - 87/03/26

PAGE 100

SEQ #	N A M E	AREA	TEL #	SIC CODES	STREET# ADDRESS LINE 1	C I T Y	PRV COE	POSTAL ADDRESS LINE 2	SRCE LG CODE CD	SEARCH CODES
15818	STANIS OUTBOARD LTD				1484 SCOTT	OTTAWA			5017 E	
	613 728-8340		5552 6	5559 6	5551 7	3428 6	5260 6	5942 7	5051 6	3734 7 CHNE
12863	EDDY'S BOOY SHOP				180 ARMSTRONG	OTTAWA			5017 E	
	613 729-6207		7535 7	7500 7					ON K1Y 2M4	
1085	GRANT STREET GARAGE 1974 LTD				1 GRANT	OTTAWA			5016 E	
	613 728-3729		5512 6	7544 6	7538 6	7500 6	7541 6		ON K1Y 2M8	
17602	MERTZ RENT A CAR				WELLINGTON ST	OTTAWA			5017 E	
	613 728-4886		7512 7	7517 7					ON K1Y 2X0	CHAI
14800	WESTERN AUTOMOBILES				3 RICHMOND RD	OTTAWA			5017 E	
	613 722-0325		5521 7						ON K1Y 2X1	
6133	DUSS BROTHERS MOTORS LTD				6 RICHMOND RD	OTTAWA			5017 E	
	613 729-3245		7538 7	5521 7	7500 7	5506 7			ON K1Y 2X2	
6152	GUS & JOHN'S SERVICE STM LTD				24 RICHMOND RD	OTTAWA			5017 E	
	613 728-5324		7538 7	5541 6	7549 6	7500 7	5506 7		ON K1Y 2X2	SHEL
15263	KELLY AUTOMOBILES / GLENN				30 RICHMOND RD	OTTAWA			5017 E	
	613 725-0243		5521 7						ON K1Y 2X3	
14786	GOODWILL AUTOMOBILE OTTAWA LTD				93 RICHMOND RD	OTTAWA			5017 E	
	613 728-0613		5521 7						ON K1Y 2X3	
241	KENS AUTO SALES OTTAWA LTD				33 RICHMOND RD	OTTAWA			5017 E	
	613 728-3561		5511 7	5521 7	7538 7	5531 7	7500 7		ON K1Y 2X4	
8955	PANTUSO'S PERFORMANCE CENTRE				927 WELLINGTON	OTTAWA			5017 E	
	613 725-1499		5509 7	7500 7	5532 7	7538 6	5541 6		ON K1Y 2X5	
1019	TOMAS AUTO BOOY				969 WELLINGTON	OTTAWA			5017 E	
	613 728-4664		7535 7	7538 6	7500 7				ON K1Y 2X7	
3385	BECKER & SON / WALLY				1000 WELLINGTON	OTTAWA			5017 E	
	613 729-6327		5521 7	7538 6	5541 6	7500 6			ON K1Y 2X9	
11804	MR GAS LTD				999 WELLINGTON	OTTAWA			5016 E	
	613 729-0495		5541 6	7500 6					ON K1Y 2Y1	
14783	CORRIGAN AUTO SALES				991 WELLINGTON	OTTAWA			5017 E	
	613 725-0330		5521 7						ON K1Y 2Y1	
14781	CITY AUTO SALES				1011 WELLINGTON	OTTAWA			5017 E	
	613 729-1416		5521 7	7512 7	7517 7				ON K1Y 2Y1	





Appendix B

Example Cover Letter and Questionnaire





CANVIRO  
CONSULTANTS

Reference KI23648.A0

Re: Waste Disposal Practices of Retail Motor Vehicle  
Service Stations

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Dear Sir:

The Ontario Ministry of the Environment (MOE) is reviewing the waste disposal practices of Retail Motor Vehicle Stations in the Province of Ontario. CANVIRO Consultants of Waterloo, Ontario have been commissioned to conduct a detailed survey of individual service stations.

Your participation in this study would be appreciated. The Ontario Petroleum Association and the Automotive Afteruse Retailers of Ontario are both aware of this study and support its intentions. A letter of introduction from the Ministry of the Environment is enclosed.

Please complete the attached questionnaire and return it to our office in the preaddressed envelope (see instructions). A CANVIRO representative will be contacting you in the next one to two weeks to answer any questions which may arise.

Thank you for your cooperation.

Sincerely,

CANVIRO CONSULTANTS

/vjj  
Encl.

Brian Whiffin, P.Eng.  
Project Engineer

(KIC1/024.2)

CANVIRO CONSULTANTS  
519/579-3500

Suite 600, 180 King Street South  
Waterloo, Ontario N2J 1P8



A Division of  
CH2M HILL ENGINEERING LTD



135 St. Clair Avenue West  
Suite 100  
Toronto, Ontario  
M4V 1P5

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Bureau 100  
Toronto (Ontario)  
M4V 1P5

March 2, 1987

Mr. Richard J. Rush, Vice President  
Canviro Consultants  
A Division of CH2M Hill Engineering Ltd.  
180 King Street South  
Suite 600  
Waterloo, Ontario  
N2J 1P8

Dear Mr. Rush:

RE: Authorization to Conduct a Survey on Retail Service Stations

This letter is to confirm that the Ontario Ministry of the Environment (Waste Management Branch) has authorized the staff of Canviro Consultants to conduct a survey on the waste management practices of Retail Motor Vehicle Service Stations in Ontario.

The purpose of this survey is to obtain information on the amount and types of hazardous and liquid wastes generated at retail service facilities and current waste management practices.

The survey will take the form of a mailed questionnaire sent to a number of service stations, selected at random from different regions of the province. Follow-up telephone calls may be used to clarify information provided on the questionnaire.

Your full co-operation will be greatly appreciated.

Yours truly,

R. M. Gotts  
Director  
Waste Management Branch

GC/jh  
IN 03 30  
RMG0051  
0359L

QUESTIONNAIRE

A. INSTRUCTIONS

- Step 1. Answer all questions and other requested information as best as possible.
- Step 2. If you are unable to complete the questionnaire, set it aside until a CANVIRO representative calls you.
- Step 3. When all information is complete, place questionnaire in pre-addressed envelope (enclosed) and forward to CANVIRO.

B. COMPANY INFORMATION

COMPANY NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

POSTAL CODE: \_\_\_\_\_ TELEPHONE NO.: (\_\_\_\_) \_\_\_\_\_

CONTACT PERSON(S): \_\_\_\_\_

NATURE OF BUSINESS (check appropriate types):

- 1) \_\_\_\_\_ GENERAL REPAIR SERVICE STATIONS WITH GAS SERVICE
- 2) \_\_\_\_\_ GENERAL REPAIR SERVICE STATIONS WITHOUT GAS SERVICE
- 3) \_\_\_\_\_ GAS SALES ONLY (IE. GAS BAR)
- 4) \_\_\_\_\_ AIR CONDITIONING SALES AND SERVICE
- 5) \_\_\_\_\_ MUFFLER SHOPS
- 6) \_\_\_\_\_ BRAKE SHOPS
- 7) \_\_\_\_\_ BATTERY SALES AND SERVICE
- 8) \_\_\_\_\_ RADIATOR SALES AND SERVICE
- 9) \_\_\_\_\_ TRANSMISSION SALES AND SERVICE
- 10) \_\_\_\_\_ AUTO BODY REPAIR AND PAINTING
- 11) \_\_\_\_\_ AUTOMOTIVE DEALER (NEW AND USED)
- 12) \_\_\_\_\_ AUTOMOTIVE DEALER (USED ONLY)
- 13) \_\_\_\_\_ MOTORCYCLE DEALER/SERVICE
- 14) \_\_\_\_\_ ALL TERRAIN DEALER (IE. SNOWMOBILES, ATVs)
- 15) \_\_\_\_\_ MARINE MOTOR DEALER/SERVICE (IE. MARINAS)
- 16) \_\_\_\_\_ HELICOPTER DEALER/SERVICE
- 17) \_\_\_\_\_ MOTOR VEHICLE RENTING AND LEASING
- 18) \_\_\_\_\_ MOTOR VEHICLE CUSTOMIZING
- 19) \_\_\_\_\_ CAR WASH AND POLISHING
- 20) \_\_\_\_\_ ENGINE REBUILDING AND EXCHANGING
- 21) \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

BREAKDOWN OF FUEL SALES (estimate percentage sold)

LEADED GAS \_\_\_\_\_ UNLEADED GAS \_\_\_\_\_ DIESEL \_\_\_\_\_ PROPANE \_\_\_\_\_

NUMBER OF FULL-TIME EMPLOYEES: \_\_\_\_\_

NUMBER OF PART-TIME EMPLOYEES: \_\_\_\_\_

C. SUMMARY OF WASTE TYPES

WASTE TYPE	CHECK APPROPRIATE TYPE (✓)	QUANTITY PRODUCED PER YEAR (gal, lbs)	MAXIMUM QUANTITY STORED (gal, lbs)	DISPOSAL METHOD
Waste Oil from Oil Changes and/or Transmission Fluid				
Silt/Sludge from Interceptor (oil/ water separator)				
Water from Under- ground Gasoline Storage Tanks				
Coolant from Radiators				
Used Batteries (number per year)				
Paint Sludge/Paint Overspray/Spray Booth Filters				
Cleaners, Thinners and Solvents: Indicate Brand Name(s) _____ _____				
Degreasing Agents: Indicate Brand Name(s) _____ _____				
Other (specify)*				

\* Does not include paper, cardboard, cloth, etc.

GENERAL PROBLEMS RELATED TO DISPOSING OF THE WASTES (list below):

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DO YOU HAVE A WRITTEN AGREEMENT WITH A WASTE HAULER?

YES \_\_\_\_\_ NO \_\_\_\_\_

WASTE HAULER (specify name, address and waste type for each hauler):

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COMMENTS AND SUGGESTIONS REGARDING WASTE DISPOSAL (list below):

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Appendix C

C-1 Employment Characteristics

C-2 Survey Waste Quantities

C-3 Waste Quantities Stored for  
Each Geographic Region

C-4 Extrapolated Waste Quantities  
for Each Geographic Region



Appendix C-1

Employment Characteristics



# Appendix C.1 Employment Characteristics

REGION	K						L						M					
	Full Time			Part Time			Full Time			Part Time			Full Time			Part Time		
SIC	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var
7542	6	6.00	0.00	1	1.00	0.00	9	4.50	12.25	6	3.00	4.00	6	6.00	0.00	0	0.00	0.00
7539	1	1.00	0.00	0	0.00	0.00	12	6.00	1.00	2	1.00	1.00	5	5.00	0.00	0	0.00	0.00
7538	30	2.14	2.55	8	0.57	0.67	62	2.70	2.12	16	0.70	0.72	54	3.86	4.69	22	1.57	4.53
7536	21	21.00	0.00	1	1.00	0.00	7	3.50	0.25	1	0.50	0.25	3	3.00	0.00	0	0.00	0.00
7535	7	1.40	0.24	0	0.00	0.00	25	3.5714	16.530	5	0.7142	0.7755	83	16.60	719.44	6	1.20	2.16
7510	10	5.00	25.00	1	0.50	0.25	28	5.60	25.04	6	1.20	1.36	8	2.67	0.22	4	1.33	0.89
5926	4	4.00	0.00	0	0.00	0.00	6	6.00	0.00	0	0.00	0.00	6	6.00	0.00	1	1.00	0.00
5571	1	1.00	0.00	0	0.00	0.00	1	1.00	0.00	0	0.00	0.00	30	30.00	0.00	4	4.00	0.00
5559	10	10.00	0.00	2	2.00	0.00	1	0.50	0.25	3	1.50	0.25	18	18.00	0.00	2	2.00	0.00
5541	13	1.63	0.23	14	1.75	3.44	34	2.43	2.82	38	2.71	2.20	33	3.67	3.78	22	2.44	2.91
5521	19	4.75	35.19	3	0.75	0.69	24	3.43	17.67	2	0.29	0.49	50	10.00	306.40	1	0.20	0.16
5511	67	33.50	342.25	0	0.00	0.00	146	36.50	236.75	7	1.75	3.19	45	21.50	2.25	0	0.00	0.00
4512	0	0.00	0.00	0	0.00	0.00	5	5.00	0.00	15	15.00	0.00	20	20.00	0.00	5	5.00	0.00
4469	2	2.00	0.00	1	1.00	0.00	2	2.00	0.00	0	0.00	0.00	4	4.00	0.00	2	2.00	0.00
3713	1	1.00	0.00	0	0.00	0.00	1	1	0	1	1	0	1	1.00	0.00	1	1.00	0.00
3594	1	1.00	0.00	2	2.00	0.00	2	2.00	0.00	0	0.00	0.00	2	2.00	0.00	0	0.00	0.00
Totals	193			33			365			102			366			70		

REGION	N						P						ONTARIO					
	Full Time			Part Time			Full Time			Part Time			Full Time			Part Time		
SIC	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var	#	Avg	Var
7542	12	2.00	1.50	15	3.75	4.69	12	12.00	0.00	8	8.00	0.00	45	5.00	10.89	30	3.33	7.33
7539	22	7.33	29.56	1	0.33	0.22	3	3.00	0.00	1	1.00	0.00	43	5.38	15.98	4	0.50	0.50
7538	63	3.00	5.81	25	1.19	3.01	27	2.70	3.81	15	1.50	2.45	236	2.88	4.06	86	1.05	2.31
7536	13	4.33	2.89	0	0.00	0.00	4	4.00	0.00	1	1.00	0.00	48	6.00	33.50	3	0.38	0.23
7535	24	2.67	2.00	3	0.33	0.22	11	2.75	0.19	0	0.00	0.00	150	5.00	151.80	14	0.47	0.78
7512	34	4.86	17.27	8	1.14	1.27	69	34.50	650.25	3	1.50	2.25	149	7.84	168.55	22	1.16	1.29
5926	3	1.50	0.25	1	0.50	0.25	6	6.00	0.00	4	4.00	0.00	25	4.17	4.14	6	1.00	2.00
5571	4	2.00	1.00	1	0.50	0.25	12	12.00	0.00	2	2.00	0.00	48	8.00	112.00	7	1.17	2.14
5559	10	5.00	0.00	2	1.00	1.00	4	4.00	0.00	0	0.00	0.00	43	6.14	32.41	9	1.29	0.78
5541	41	2.93	7.64	38	2.71	2.06	18	3.00	2.00	19	3.17	3.14	139	2.73	4.20	131	2.57	2.76
5521	38	4.75	7.69	6	0.75	1.19	10	3.33	0.22	4	1.33	1.56	141	5.22	74.40	16	0.59	0.91
5511	58	11.60	53.84	4	0.80	0.56	17	17.00	0.00	2	2.00	0.00	331	23.64	252.80	13	0.93	1.64
4512	2	2.00	0.00	2	2.00	0.00	10	10.00	0.00	5	5.00	0.00	37	9.25	46.69	27	6.75	24.19
4469	10	3.33	3.56	4	1.33	0.22	1	1.00	0.00	0	0.00	0.00	19	2.71	2.49	7	1.00	0.57
3713	11	3.67	9.56	1	0.33	0.22	3	3.00	0.00	0	0.00	0.00	17	2.43	5.67	3	0.43	0.24
3594	25	8.33	32.89	0	0.00	0.00	3	3.00	0.00	0	0.00	0.00	33	4.71	24.20	2	0.29	0.49
Totals	370			111			210			64			1504			380		



Appendix C-2  
Survey Waste Quantities





DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 0			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION I	7542	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7512	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0
	5521	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		13	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0		
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR
	7512	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR
	5541	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	ERR	ERR
	5521	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		24	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0		
REGION M	7542	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
	7512	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
	5521	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	3594	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Totals		21	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 0			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION N	7542	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0
	7512	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0
	5521	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		32	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0		
REGION Q	7542	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7538	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7535	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0
	7512	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5559	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	5541	42	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0
	5521	14	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4512	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3713	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
	3594	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Totals		95	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0		

REGIONAL METHOD		0		1		2		3		4		5		6		TOTALS WASTE TYPE 1			
SIC		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION A	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	6	7980	4	196	1	1000	0	0	0	0	0	0	13	5176	398	140429
	7536	0	0	1	3600	0	0	0	0	0	0	0	0	0	0	1	3600	3600	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	1	300	0	0	0	0	0	0	0	0	0	0	1	300	300	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	1	600	0	0	0	0	0	0	0	0	0	0	1	600	600	ERR
	5541	0	0	1	300	0	0	0	0	0	0	0	0	0	0	1	300	300	ERR
	5521	1	1200	2	1000	0	0	0	0	0	0	0	0	0	0	2	2200	777	ERR
	5511	0	0	2	5000	0	0	0	0	0	0	0	0	0	0	2	5000	2500	500000
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	1	50	0	0	0	0	0	0	0	0	1	50	50	ERR
	2713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2594	0	0	0	0	0	0	0	0	0	0	0	0	1	50	1	50	50	ERR
Totals		1	1200	16	14780	5	246	1	1000	0	0	0	0	1	50	24	17276		
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	540	21	15046	0	0	1	700	0	0	0	0	0	0	23	16286	708	469126
	7536	0	0	3	2320	0	0	0	0	0	0	0	0	0	0	3	2320	773	1130133
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	1	400	1	800	0	0	0	0	0	0	0	0	2	1200	600	80000
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	1	36	1	36	36	ERR
	5559	1	130	0	0	0	0	0	0	0	0	0	0	0	0	1	130	130	ERR
	5541	1	100	2	1600	0	0	0	0	0	0	0	0	0	0	3	1700	567	203337
	5521	1	200	0	0	0	0	0	0	0	0	0	0	0	0	1	200	200	ERR
	5511	0	0	4	25100	0	0	0	0	0	0	0	0	0	0	4	25100	6275	32782500
	4512	1	80	0	0	0	0	0	0	0	0	0	0	0	0	1	80	80	ERR
	4469	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	ERR
	2713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2594	0	0	1	600	0	0	0	0	0	0	0	0	0	0	1	600	600	ERR
Totals		5	1050	32	45046	2	801	1	700	1	0	0	0	1	36	41	47653		
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	7538	0	0	12	32400	1	120	0	0	0	0	0	0	0	0	13	32520	2502	6620631
	7536	0	0	1	2400	0	0	0	0	0	0	0	0	0	0	1	2400	2400	ERR
	7535	0	0	2	6000	0	0	0	0	0	0	0	0	0	0	2	6000	3000	6480000
	7512	0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	100	100	ERR
	5926	0	0	1	250	0	0	0	0	0	0	0	0	0	0	1	250	250	ERR
	5571	0	0	1	1000	0	0	0	0	0	0	0	0	0	0	1	1000	1000	ERR
	5559	0	0	1	2400	0	0	0	0	0	0	0	0	0	0	1	2400	2400	ERR
	5541	0	0	1	1200	0	0	0	0	0	0	0	0	0	0	1	1200	1200	ERR
	5521	0	0	1	13000	0	0	0	0	0	0	0	0	0	0	1	13000	13000	ERR
	5511	0	0	2	6760	0	0	0	0	0	0	0	0	0	0	2	6760	3180	15504800
	4512	0	0	1	240	0	0	0	0	0	0	0	0	0	0	1	240	240	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	25	65370	1	120	0	0	0	0	0	0	0	0	26	65490		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 1			
SIC :		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		0 Qty		Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	1	60	1	60	60	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	14	18695	2	1940	0	0	1	50	0	0	0	0	22	19785	849	1274077
	7576	0	0	0	4720	0	0	0	0	0	0	0	0	0	0	0	4720	1573	195502
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	1	3000	0	0	0	0	0	0	0	0	1	200	2	3200	1600	3920000
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	200	1	2	0	0	0	0	0	0	0	0	0	202	101	19600
	5559	1	400	0	0	1	5	0	0	0	0	0	0	0	0	0	405	203	78000
	5541	0	0	0	3000	0	0	0	0	0	0	0	0	0	0	0	3000	1500	90000
	5521	0	0	5	2796	1	400	0	0	0	0	0	0	0	0	0	2796	559	151500
	5511	0	0	0	12740	0	0	0	0	0	0	0	0	0	0	6	12740	2290	14797200
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	1	150	0	70	0	0	0	0	0	0	0	0	0	220	70	4500
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	3	2605	0	0	0	0	0	0	0	0	0	0	3	2605	868	1996808
Totals		1	400	42	52906	7	1517	0	0	1	50	0	0	2	260	53	55133		
REGION P	7542	0	0	1	2400	0	0	0	0	0	0	0	0	0	0	1	2400	2400	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	3	815	0	0	3	1270	0	0	0	0	4	1085	10	3170	317	50173
	7576	0	0	1	1200	0	0	0	0	0	0	0	0	0	0	1	1200	1200	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	2	2650	0	0	0	0	0	0	0	0	0	0	2	2650	1325	2311250
	5926	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR
	5571	0	0	1	600	0	0	0	0	0	0	0	0	0	0	1	600	600	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	1	120	1	120	120	ERR
	5541	0	0	1	1500	1	1200	0	0	0	0	0	0	0	0	2	2700	1350	45000
	5521	0	0	2	2280	1	220	0	0	0	0	0	0	0	0	3	2500	833	285733
	5511	0	0	1	1200	0	0	0	0	0	0	0	0	0	0	1	1200	1200	ERR
	4512	0	0	1	90	0	0	0	0	0	0	0	0	0	0	1	90	90	ERR
	4469	0	0	0	0	1	480	0	0	0	0	0	0	0	0	1	480	480	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	1	40	0	0	0	0	0	0	0	0	1	40	40	ERR
Totals		0	0	14	13105	4	1940	3	1270	0	0	0	0	5	1205	26	17550		
EXAMPLE TOTALS	7542	0	0	1	2400	0	0	0	0	0	0	0	0	1	60	2	2460	1230	2727800
	7539	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	7538	1	540	63	70936	7	1350	5	2970	1	50	0	0	4	1085	81	76937	950	1995801
	7536	0	0	9	14240	0	0	0	0	0	0	0	0	0	0	9	14240	1582	1186844
	7535	0	0	2	6000	0	0	0	0	0	0	0	0	0	0	2	6000	3000	6480000
	7512	0	0	6	6450	1	800	0	0	0	0	0	0	1	200	8	7450	931	1260670
	5926	0	0	2	650	0	0	0	0	0	0	0	0	0	0	2	650	325	11250
	5571	0	0	3	1800	1	2	0	0	0	0	0	0	1	36	5	1838	368	181413
	5559	2	530	2	3000	1	5	0	0	0	0	0	0	1	120	6	3655	609	816954
	5541	1	100	8	11600	1	1200	0	0	0	0	0	0	0	0	10	12900	1290	718778
	5521	2	1400	10	19076	2	620	0	0	0	0	0	0	0	0	14	21096	1507	11114744
	5511	0	0	15	51400	0	0	0	0	0	0	0	0	0	0	15	51400	3427	16938538
	4512	1	8	2	370	0	0	0	0	0	0	0	0	0	0	0	410	177	8000
	4469	0	0	1	150	5	600	0	0	0	0	0	0	0	0	0	750	125	22500
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	4	3295	1	40	0	0	0	0	0	0	1	50	6	3345	549	902041
Totals		7	2650	129	191257	19	4624	5	2970	1	50	0	0	9	1551	170	203102		



DISPOSAL METHOD		0		1		2		3		4		5		6		TOTALS WASTE TYPE 2				
	SIC	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var	
REGION N	7542	0	0	2	1700	0	0	0	0	0	0	0	0	0	0	2	1700	850	45000	
	7539	0	0	0	0	0	0	0	0	0	0	0	0	1	30	1	30	ERR	ERR	
	7538	0	0	0	0	0	0	0	0	0	0	0	0	2	20	2	20	ERR	ERR	
	7536	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
Totals		0	0	3	2100	0	0	0	0	0	0	0	0	3	50	6	2150			
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5511	0	0	1	500	0	0	0	0	0	0	0	0	0	0	1	500	500	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
Totals		0	0	1	500	0	0	0	0	0	0	0	0	0	0	1	500			
SAMPLE TOTALS	7542	0	0	4	4100	0	0	0	0	0	0	0	0	4	4100	1025	462500			
	7539	0	0	0	0	0	0	0	0	0	0	0	1	30	1	30	ERR	ERR		
	7538	0	0	2	900	0	0	0	0	0	0	0	2	20	4	920	230	146200		
	7536	0	0	1	400	0	0	0	0	0	0	0	0	0	1	400	400	ERR	ERR	
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	5541	0	0	1	200	0	0	0	0	0	0	0	0	0	1	200	200	ERR	ERR	
	5521	2	110	0	0	0	0	0	0	0	0	0	0	2	110	55	4050			
	5511	0	0	3	610	0	0	0	0	0	0	0	0	0	3	610	203	68000		
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
Totals		2	110	11	6210	0	0	0	0	0	0	0	7	50	16	6570				



DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 2			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22	22	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22		
SAMPLE TOTALS	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22	22	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	1	22	0	0	0	0	0	0	0	0	0	0	1	22		



DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 4			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION K	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	1	200	0	0	0	0	0	0	0	0	0	0	1	200	200	ERR
	7538	0	0	0	0	3	90	0	0	0	0	0	0	0	28	8	270	62	4777
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	1	100	0	0	0	0	0	0	0	0	0	0	0	62	3	162	54	1745
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	100	1	200	3	90	0	0	0	0	0	0	5	342	10	732		
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	1	300	0	0	0	0	0	0	2	400	3	700	233	3333
	7538	1	100	0	0	1	96	0	0	0	0	0	0	5	940	7	1136	162	38277
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	200	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	250	1	96	0	0	0	0	0	0	1	180	3	526	175	5945
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	1	500	0	0	0	0	0	0	0	0	1	500	2	1000	500	0
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	100	2	750	3	492	0	0	0	0	0	0	10	2020	16	3562		
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	1	200	0	0	0	0	0	0	0	0	1	200	200	ERR
	7538	0	0	2	149	1	80	0	0	0	0	0	0	4	795	7	1015	145	14058
	7536	0	0	0	0	0	0	0	0	0	0	0	0	1	120	1	120	120	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	1	24	1	24	24	ERR
	7512	0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	100	100	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	50	50	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	1	120	0	0	0	0	0	0	0	0	0	0	1	120	120	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	5	410	2	280	0	0	0	0	0	0	6	939	13	1629		

BIBB COUNTY METHOD 1		0		1		2		3		4		5		6		TOTALS WASTE TYPE 4			
SIC 1		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
SESSION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	3	2760	3	2760	920	113200
	7538	0	0	1	160	1	50	0	0	0	0	0	0	4	462	7	672	96	9900
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	1	24	0	0	0	0	1	24	24	ERR
Totals		0	0	2	160	1	50	0	0	1	24	0	0	13	4676	17	4910		
SESSION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	3	660	3	660	220	59200
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	2	34	2	34	17	98
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1	100	100	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	0	0	0	0	4	794	6	794		
SAMPLE TOTALS	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	1	200	2	500	0	0	0	0	0	0	5	3150	8	3860	480	164700
	7538	1	100	4	300	6	310	0	0	0	0	0	0	15	3137	30	3850	128	20170
	7536	0	0	0	0	0	0	0	0	0	0	0	0	1	120	1	120	120	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	1	24	1	24	24	ERR
	7512	0	0	1	100	0	0	0	0	0	0	0	0	3	234	4	334	84	7596
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	50	50	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	1	250	1	96	0	0	0	0	0	0	3	554	5	880	176	5638
	5521	1	100	0	0	0	0	0	0	0	0	0	0	4	262	5	362	72	1600
	5511	0	0	2	620	0	0	0	0	0	0	0	0	4	1500	6	2120	353	28000
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	1	24	0	0	0	0	1	24	24	ERR
Totals		2	200	10	1520	9	910	0	0	1	24	0	0	40	6071	62	11627		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 5			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION Y	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	12	784	0	0	0	0	12	784	65	6418
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	1	120	0	0	0	0	1	120	120	ERR
	5926	0	0	0	0	0	0	0	0	1	1000	0	0	0	0	1	1000	1000	ERR
	5571	0	0	0	0	1	5	0	0	0	0	0	0	0	0	1	5	5	ERR
	5559	0	0	1	250	0	0	0	0	0	0	0	0	0	0	1	250	250	ERR
	5541	0	0	0	0	0	0	0	0	1	12	0	0	0	0	1	12	12	ERR
	5521	1	100	0	0	0	0	0	0	2	107	0	0	0	0	2	107	69	2892
	5511	0	0	0	0	0	0	0	0	2	120	0	0	0	0	2	120	65	6050
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	1	10	0	0	0	0	1	10	10	ERR
	3710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	100	1	250	1	5	0	0	20	4162	0	0	0	0	23	4516		
REGION L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	21	1475	0	0	0	0	21	1475	70	3735
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	1	100	0	0	0	0	0	0	1	25	0	0	0	0	2	125	63	2813
	5926	0	0	0	0	0	0	0	0	1	1000	0	0	0	0	1	1000	1000	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	1	50	0	0	0	0	1	50	50	ERR
	5541	0	0	0	0	0	0	0	0	3	210	0	0	0	0	3	210	70	700
	5521	1	48	0	0	0	0	0	0	0	0	0	0	0	0	1	48	48	ERR
	5511	0	0	0	0	0	0	0	0	4	492	0	0	0	0	4	492	123	4175
	4512	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2	1	ERR
	4469	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	ERR
	3710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	1	24	0	0	0	0	1	24	24	ERR
Totals		3	148	0	0	1	2	0	0	32	3276	0	0	0	0	36	3428		
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	13	1336	0	0	0	0	13	1336	103	5588
	7536	0	0	0	0	0	0	0	0	1	48	0	0	0	0	1	48	48	ERR
	7535	0	0	0	0	0	0	0	0	2	960	0	0	0	0	2	960	480	28800
	7512	0	0	0	0	0	0	0	0	1	20	0	0	0	0	1	20	20	ERR
	5926	0	0	0	0	0	0	0	0	1	120	0	0	0	0	1	120	120	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1	100	100	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	1	240	1	240	240	ERR
	5541	0	0	0	0	0	0	0	0	1	60	0	0	0	0	1	60	60	ERR
	5521	0	0	0	0	0	0	0	0	1	260	0	0	0	0	1	260	260	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	1	30	0	0	0	0	1	30	30	ERR
	3710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	0	0	0	0	21	2874	0	0	2	340	23	3124		

DISPOSAL METHOD		1		2		3		4		5		6		TOTALS WASTE TYPE 5			
	SIC	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	Avg	Var
REGION A	7540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	17	1249	0	0	1	20	19	1399	76	6209
	7536	0	0	0	0	0	0	1	50	0	0	0	0	1	50	50	ERR
	7537	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	1	40	0	0	0	0	1	40	40	ERR
	5926	0	0	0	0	0	0	2	600	0	0	0	0	2	600	300	0
	5571	0	0	0	0	0	0	1	30	0	0	0	0	1	30	30	ERR
	5559	0	0	0	0	10	0	0	0	0	0	0	0	0	0	10	0
	5541	0	0	0	0	0	0	1	800	0	0	0	0	1	800	277	45633
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1069	0
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	4568
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4465	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2717	0	0	0	0	0	0	0	0	0	0	0	0	1	5	5	ERR
	7594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		0	0	0	0	1	10	0	0	40	3711	0	0	1	20	42	3741
REGION P	7540	0	0	0	0	0	0	0	1	240	0	0	0	0	1	240	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	20	0	0	0	0	0	8	374	0	0	1	75	19	429	815
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	2	169	0	0	0	0	2	169	85	7081
	5926	0	0	0	0	0	0	1	20	0	0	0	0	1	20	20	ERR
	5571	0	0	0	0	0	0	1	65	0	0	0	0	1	65	65	ERR
	5559	0	0	0	0	0	0	0	0	0	0	1	20	1	20	20	ERR
	5541	0	0	0	0	0	0	2	80	0	0	0	0	2	80	40	200
	5521	0	0	0	0	0	0	2	70	0	0	0	0	2	70	35	450
	4512	0	0	0	0	0	0	1	40	0	0	0	0	1	40	40	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2717	0	0	0	0	0	0	0	0	0	0	0	0	1	250	250	ERR
	7594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	20	0	0	0	0	0	19	1069	0	0	2	95	20	1082	
REGION S	7540	0	0	0	0	0	0	0	1	240	0	0	0	0	1	240	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	20	0	0	0	0	0	71	5278	0	0	2	95	74	5393	73
	7536	0	0	0	0	0	0	0	2	98	0	0	0	2	98	49	2
	7535	0	0	0	0	0	0	0	2	960	0	0	0	2	960	480	28800
	7512	1	100	0	0	0	0	0	6	374	0	0	0	7	474	68	2715
	5926	0	0	0	0	0	0	0	6	4740	0	0	0	6	4740	790	1290040
	5571	0	0	0	0	1	5	0	2	95	0	0	1	100	4	200	50
	5559	0	0	1	250	1	10	0	2	60	0	0	2	260	6	580	97
	5541	0	0	0	0	0	0	0	10	1192	0	0	0	10	1192	119	22451
	5521	2	145	0	0	0	0	0	10	719	0	0	0	12	857	72	4561
	4512	0	0	0	0	0	0	0	12	1092	0	0	0	12	1092	91	4093
	4469	0	0	0	0	0	0	0	0	0	0	0	0	1	3	3	ERR
	4465	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	7738
	2717	0	0	0	0	0	0	0	1	5	0	0	0	1	5	5	ERR
	7594	0	0	0	0	0	0	0	1	24	0	0	0	1	24	24	ERR
Totals		5	265	1	250	2	18	0	132	15252	0	0	5	455	146	16244	

WASTE DISPOSAL METHOD		0		1		2		3		4		5		6		TOTALS WASTE TYPE 6	
		SIC	Qty	SIC	Qty	SIC	Qty	SIC	Qty	SIC	Qty	SIC	Qty	SIC	Qty	Avg	Var
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7528	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7525	0	0	0	0	0	0	0	0	0	0	0	2	22	2	11	2
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4466	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	2594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals			0	0	0	0	0	0	0	0	0	0	2	222	3	222	
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7528	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7525	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4466	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	1	10	1	10	ERR
	2594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals			0	0	0	0	0	0	0	0	0	0	1	10	1	10	
REGION Q	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7529	0	0	0	0	0	0	0	0	0	0	0	1	100	1	100	ERR
	7528	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	1	50	2	22	3	72	24
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	1	200	1	200	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4466	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3712	0	0	0	0	0	0	0	0	0	0	0	1	10	1	10	ERR
	2594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals			0	0	0	0	0	0	0	0	0	1	50	6	532	7	562

DISPOSAL METHOD :																	TOTALS WASTE TYPE 7		
SIC :		0 Qty		1 Qty		2 Qty		3 Qty		4 Qty		5 Qty		6 Qty		0 Qty		Avg	Var
FEEBON V	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	5	165	0	0	1	45	0	0	2	20	0	0	8	230	29	565
	7536	0	0	1	500	0	0	0	0	0	0	0	0	0	0	1	500	500	ERR
	7535	0	0	0	0	0	0	1	15	0	0	2	55	1	50	4	120	30	375
	7512	0	0	1	10	0	0	0	0	0	0	0	0	0	0	1	10	10	ERR
	5926	0	0	1	120	0	0	0	0	0	0	0	0	0	0	1	120	120	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	50	50	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	1	30	0	0	0	0	0	0	0	0	0	0	0	0	1	30	30	ERR
	5511	1	45	1	174	0	0	0	0	0	0	0	0	0	0	3	219	110	8001
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	1	30	0	0	0	0	0	0	0	0	1	30	30	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		2	75	10	1019	1	30	2	60	0	0	4	75	1	60	20	1319		
FEEBON L	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	24	13	951	0	0	0	0	0	0	1	2	1	20	16	997	62	2446
	7536	0	0	1	130	0	0	0	0	0	0	0	0	0	0	1	130	130	ERR
	7535	1	60	2	240	0	0	0	0	0	0	1	24	1	48	5	372	74	3701
	7512	1	50	1	100	0	0	0	0	0	0	0	0	0	0	2	150	75	1250
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	5	5	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	2	210	0	0	0	0	0	0	0	0	0	0	2	210	105	11250
	5521	1	48	0	0	0	0	0	0	0	0	0	0	0	0	1	48	48	ERR
	5511	0	0	5	3250	0	0	0	0	0	0	0	0	0	0	5	3250	650	630700
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	1	12	0	0	1	12	12	ERR
	3594	0	0	1	60	0	0	0	0	0	0	0	0	0	0	1	60	60	ERR
Totals		4	182	25	4941	0	0	0	0	0	0	3	78	3	75	35	5234		
FEEBON H	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	6	1055	1	30	0	0	0	0	0	0	1	10	10	1095	110	9187
	7536	0	0	1	150	0	0	0	0	0	0	0	0	0	0	1	150	150	ERR
	7535	0	0	1	200	0	0	0	0	0	0	0	0	0	0	1	200	200	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	120	0	0	0	0	0	0	0	0	0	0	1	120	120	ERR
	5559	1	40	0	0	0	0	0	0	0	0	0	0	0	0	1	40	40	ERR
	5541	0	0	1	120	0	0	0	0	0	0	0	0	0	0	1	120	120	ERR
	5521	0	0	0	0	0	0	0	0	0	0	1	36	0	0	1	36	36	ERR
	5511	0	0	2	300	0	0	0	0	0	0	0	0	0	0	2	300	150	1800
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	ERR	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	40	14	1945	1	30	0	0	0	0	1	36	1	10	18	2061		

DISPOSAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 7			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	9	647	1	50	0	0	1	57	0	0	0	0	11	784	71	5516
	7536	0	0	4	734	0	0	0	0	0	0	0	0	0	0	4	734	184	16687
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	78	39	162
	7512	0	0	1	50	0	0	0	0	0	0	0	0	0	0	1	50	50	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	1	45	0	0	0	0	0	0	0	0	0	0	1	45	45	ERR
	5559	0	0	2	117	0	0	0	0	0	0	0	0	0	0	2	117	59	1625
	5541	0	0	2	177	0	0	0	0	0	0	0	0	0	0	2	177	89	5
	5521	0	0	4	217	0	0	0	0	0	0	0	0	0	0	5	217	45	866
	5511	0	0	1	150	0	0	0	0	0	0	0	0	0	0	3	270	77	8008
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4466	0	0	2	109	0	0	0	0	0	0	0	0	0	0	2	109	55	2110
	3715	0	0	0	0	1	20	0	0	0	0	0	0	0	0	1	20	20	ERR
3594	0	0	2	390	0	0	0	0	0	0	0	0	0	0	2	390	195	48050	
Totals		0	0	28	2666	2	70	0	0	1	67	2	78	2	60	36	2961		
REGION P	7542	0	0	1	24	0	0	0	0	0	0	0	0	0	0	1	24	24	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	4	372	0	0	0	0	0	0	0	0	0	240	7	612	87	3181
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	1	60	1	50	0	0	0	0	0	0	1	120	3	230	77	1432
	7512	0	0	2	710	0	0	0	0	0	0	0	0	0	0	2	710	355	18050
	5926	0	0	1	24	0	0	0	0	0	0	0	0	0	0	1	24	24	ERR
	5571	0	0	1	60	0	0	0	0	0	0	0	0	0	0	1	60	60	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	1	120	0	0	0	0	0	0	1	120	120	ERR
	5521	1	12	0	0	0	0	0	0	0	0	0	0	0	0	1	12	12	ERR
	5511	0	0	1	30	0	0	0	0	0	0	0	0	0	0	1	30	30	ERR
	4512	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	4466	0	0	0	0	1	60	0	0	0	0	0	0	0	0	1	60	60	ERR
	3715	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	10	10	ERR
	3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
Totals		1	12	12	1300	2	110	1	120	0	0	0	0	5	370	21	1912		
REGION Q	7542	0	0	1	24	0	0	0	0	0	0	0	0	0	0	1	24	24	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	1	24	39	3190	2	80	1	45	1	57	2	21	5	270	50	3716	72	4793
	7536	0	0	7	1514	0	0	0	0	0	0	0	0	0	0	7	1514	216	24447
	7535	1	60	4	500	1	50	1	15	0	0	5	157	3	228	15	1010	67	3109
	7512	1	50	5	670	0	0	0	0	0	0	0	0	0	0	6	920	153	28827
	5926	0	0	2	144	0	0	0	0	0	0	0	0	0	0	2	144	72	4608
	5571	0	0	3	225	0	0	0	0	0	0	0	0	1	5	4	230	58	2275
	5559	1	40	3	167	0	0	0	0	0	0	0	0	0	0	4	207	52	619
	5541	0	0	5	507	0	0	1	120	0	0	0	0	0	0	6	627	105	2450
	5521	2	98	4	217	0	0	0	0	0	0	0	0	10	9	353	39	571	
	5511	1	45	10	3924	0	0	0	0	0	0	0	0	50	12	4029	310	291689	
	4512	0	0	1	20	0	0	0	0	0	0	0	0	0	0	1	20	20	ERR
	4466	0	0	2	109	0	0	0	0	0	0	0	0	0	0	4	199	50	884
	3715	0	0	0	0	1	20	0	0	0	0	1	15	1	10	3	42	14	26
	3594	0	0	2	450	0	0	0	0	0	0	0	0	0	0	3	450	150	30100
Totals		5	309	69	11871	6	240	3	180	1	67	10	227	17	573	130	12497		

[illegible]



EXPERIMENTAL METHOD :		0		1		2		3		4		5		6		TOTALS WASTE TYPE 8			
SIC :		#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	#	Qty	Avg	Var
REGION N	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	1	350	0	0	0	0	0	0	0	0	0	0	1	350	350	ERR
Totals		0	0	1	350	0	0	0	0	0	0	0	0	2	370	3	720		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	1	400	0	0	0	0	0	0	0	0	0	0	1	400	400	ERR
Totals		0	0	2	800	0	0	0	0	0	0	0	0	0	0	2	800		
REGION Q	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	2	500	0	0	0	0	0	0	0	0	0	0	2	500	500	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	3594	0	0	2	750	0	0	0	0	0	0	0	0	0	0	2	750	750	ERR
Totals		0	0	4	1250	0	0	0	0	0	0	0	0	2	370	6	1620		



WASTE TYPE		1	9	9	9	9	9	9	9	9	9	9	9	9	9	TOTALS WASTE TYPE 9			
DISPOSAL METHOD :		0		1		2		3		4		5		6		0	Qty	Avg	Var
SIC :		0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty	0	Qty		
REGION M	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	1	300	0	0	0	0	0	0	0	0	0	0	0	0	1	300	300	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
Totals		1	300	0	0	0	0	0	0	0	0	0	0	0	0	1	300		
REGION P	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SAMPLE TOTALS	7542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7539	1	300	0	0	0	0	0	0	0	0	0	0	0	0	1	300	300	ERR
	7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	5511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
	4469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR
3713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
3594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ERR	ERR	
Totals		1	300	0	0	0	0	0	0	0	0	0	0	0	0	1	300		



Appendix C-3

Waste Quantities Stored for Each  
Geographic Region



MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION K

WASTE TYPE	1	2	3	4	5	6	7	8	9
UNITS	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539	ERR	ERR	ERR	200	ERR	ERR	ERR	ERR	ERR
7538	181	ERR	ERR	42	31	ERR	11	ERR	ERR
7536	300	ERR	ERR	ERR	ERR	ERR	0	ERR	ERR
7535	ERR	ERR	ERR	ERR	ERR	10	3	ERR	ERR
7512	300	ERR	ERR	ERR	10	ERR	0	ERR	ERR
5926	ERR	ERR	ERR	ERR	30	ERR	30	ERR	ERR
5571	ERR	ERR	ERR	ERR	1	ERR	ERR	ERR	ERR
5559	200	ERR	ERR	ERR	150	ERR	25	ERR	ERR
5541	300	ERR	ERR	ERR	12	ERR	ERR	ERR	ERR
5521	200	0	ERR	2	7	ERR	0	ERR	ERR
5511	450	0	ERR	ERR	8	ERR	33	ERR	ERR
4512	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
4469	50	ERR	ERR	ERR	0	ERR	0	ERR	ERR
3713	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
3594	5	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

ERR No sample occurrences

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION L

WASTE TYPE	1	2	3	4	5	6	7	8	9
UNITS	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542	ERR	1200	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539	ERR	ERR	ERR	0	ERR	ERR	ERR	45	ERR
7538	365	ERR	ERR	10	27	ERR	7	ERR	ERR
7536	237	ERR	ERR	ERR	ERR	ERR	15	ERR	ERR
7535	ERR	ERR	ERR	ERR	ERR	ERR	4	ERR	ERR
7512	150	ERR	ERR	0	100	ERR	30	ERR	ERR
5926	ERR	ERR	ERR	ERR	100	ERR	ERR	ERR	ERR
5571	0	ERR	ERR	ERR	ERR	ERR	0	ERR	ERR
5559	130	ERR	ERR	ERR	50	ERR	ERR	ERR	ERR
5541	250	0	ERR	0	5	ERR	8	ERR	ERR
5521	200	100	ERR	ERR	4	ERR	0	ERR	ERR
5511	506	ERR	ERR	1000	4	0	11	ERR	ERR
4512	135	ERR	ERR	ERR	0	ERR	ERR	ERR	ERR
4469	0	ERR	ERR	ERR	0	ERR	ERR	ERR	ERR
3713	ERR	ERR	ERR	ERR	ERR	ERR	0	ERR	ERR
3594	200	ERR	ERR	ERR	0	ERR	10	ERR	ERR

ERR No sample occurrences

service stations in the survey sample and the largest estimated provincial population. SIC 5511 generally had the highest average volumes of those waste types, with the exception of waste coolant for which radiator shops (SIC 7539) had the highest average.

#### 4.1.2.2 Geographic Region

The survey results were extrapolated by region and waste type. The results of the estimates are summarized in Table 4.4. Regions 'L', 'M' and 'N' produced the largest estimated annual quantities of most waste types. This was probably due to the fact that the majority of the population of Ontario resides in these 3 regions. Regions 'K' and 'P' produced the lowest annual quantities of wastes. Annual estimates of wastewater from waste caustic cleaners and halogenated cleaners were poorly represented throughout all regions of Ontario. It should be noted that geographic regions which have no waste generation for some waste types (as shown in Table 4.4) are not likely representative. This is attributable to either the small sample for some service station types or the inability of the service station management to report waste quantities.

#### 4.2 Other Sources of Waste Quantity Data

Several other sources of waste quantity data were identified and contacted as part of this study to obtain waste generation estimates. These organizations include:

##### 1) Member Organizations

- i) Ontario Petroleum Association
- ii) National Automobile Radiation Association (NARSA)
- iii) Automobile Aftermarket Retailers of Ontario (AARO)
- iv) Thunder Bay Association of Automotive Trades

##### 2) Waste Receivers/Haulers

- i) Can Am Oil (waste oil, interceptor sludges)
- ii) Canadian Oil (waste oil, interceptor sludges)
- iii) Safety Kleen (non-halogenated solvents)

#### 4.2.1 Waste Oils

Two primary receivers of waste oils were identified in Ontario, namely:

- i) Can Am Oil Services, Division of Breslube Inc.
- ii) Canadian Oil Company



TABLE 4.4 ESTIMATED WASTE QUANTITIES FOR EACH POSTAL CODE REGION

POSTAL CODE REGION	WASTE TYPE	K		L		M		N		P		ONTARIO	
		Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity	Est. Quantity
		A	B	A	B	A	B	A	B	A	B	A	B
1. Waste Oils	(lgal)	1086867	941735	3851014	3337076	4267704	3697454	3642809	3156205	979873	848908	13828268	11981379
2. Oil/Sludge From Interceptor	(lgal)	1390	1205	141225	122280	72100	62466	102284	88566	49286	42714	366285	317231
3. Gasoline Storage Tank Bottoms ‡	(lgal)	0	0	0	0	0	0	0	0	0	0	0	0
4. Waste Coolant	(lgal)	41816	36219	250278	216830	105153	91100	301008	260706	51904	44967	750159	649824
5. Waste Batteries	(each)	201845	174735	209653	181600	224532	194514	223650	193730	87334	75656	947614	820236
6. Waste Paint Filters	(lbs)	5050	4375	19714	17086	4838	4188	10311	8932	157	136	40070	34716
7. Non-Halogenated Solvents, Thinners	(lgal)	72726	63005	454316	393694	142082	123106	149995	129933	130383	112975	949502	822713
8. Caustic Cleaners	(lgal)	0	0	4838	4188	0	0	28649	24794	31636	27379	65122	56360
9. Halogenated Cleaners	(lgal)	0	0	0	0	0	0	14513	12563	0	0	14513	12563

‡ Gasoline storage tank bottom quantities not calculated due to insufficient survey data

Can Am estimated that they hold 70% of the service station waste oil recycling market in Ontario (D. Schofield, personal communication, 1987). This amounts to an estimated 10 million Igal/year of crankcase oil per year which when scaled up to 100% market share equals 14.3 million Igal/year. It should be noted that these quantities are only approximate and were only estimated by Can Am.

Canadian Oil estimated that service stations in Ontario produce approximately 12 million Igal/year of which they collect 1.5 million Igal/year (D. Fisher, personal communication, 1987).

It is evident that the estimated province wide generation of waste oil estimated by Can Am and Canadian Oil agree quite well with each other and with the quantity estimated in this study, suggesting that these quantities are probably reliable.

In a similar study conducted for OWMC, CANVIRO (1988) estimated that approximately 10 million Igal/year of waste oil are produced by the Non-Industrial sector in Ontario. This quantity is slightly lower than estimated in the current study but is of similar magnitude.

#### 4.2.2 Interceptor Wastes

Can Am and Canadian Oil are also major receivers as well as haulers for service station interceptor wastes (Can Am is reportedly the largest receiver in the province (D. Schofield, personal communication, 1987)). Can Am estimates that they clean-out approximately 125 interceptors per month each with an average waste volume of 700 Igal. This amounts to 1,050,000 Igal annually. The wastes contain primarily water with an estimated 1.0% oil (10,500 Igal/year). Approximately 48,000 Igal/year of oil are generated from the treatment of interceptor wastes at Can Am's Toronto facility which receives wastes from other than the service station sector.

Canadian Oil estimates that they collect between 700 and 1100 Igal/year from each of the 300 service stations that they serve (D. Fisher, personal communication, 1987). This represents an average of 270,000 Igal/year of interceptor wastes collected by Canadian Oil.

The total quantity of interceptor wastes generated in Ontario can also be estimated by assuming that each interceptor is cleaned out on an annual basis. Given the population estimates A and B, the SIC categories which produce interceptor wastes and an average volume/year/clean-out based on only those businesses reporting a waste quantity, the waste quantities in Table 4.5 can be derived. These estimated quantities are much higher than the total reported by individual generators and probably provides an upper limit on the quantity of interceptor wastes generated annually province wide.

The larger quantities estimated by this method may suggest that all interceptors are not cleaned out annually, that all businesses do not have interceptors, or that the average quantity calculated per clean-out is high. Alternatively, other sources of waste quantity may be low.

Table 4.5  
ESTIMATED QUANTITIES OF INTERCEPTOR WASTES  
GENERATED IN ONTARIO

SIC	Estimated Population A	Estimated Population B	Average Quantity* (Igal/year)	Estimated Quantity A (Igal)	Estimated Quantity B (Igal)
7452	477	413	1025	488,925	423,325
7539	387	335	30	11,610	10,050
7538	5671	4913	230	1,304,330	1,129,990
7536	187	162	400	74,800	64,800
5541	2545	2204	200	509,000	440,800
5521	1092	946	55	60,060	52,030
5511	1380	1196	203	280,140	242,788
Totals				2,728,865	2,363,783

Notes: \* Average quantity (estimated quantities assume 100% of population are waste generators).

1 Only SIC categories who reported having interceptor wastes were included in the above estimate.

#### 4.2.3 Gasoline Storage Tank Bottoms

The Ontario Petroleum Association (OPA) was contacted by CANVIRO personnel and was able to provide estimates of tank bottom quantities for their member companies. The OPA is comprised of eight major gasoline suppliers which represents a major although unquantified share of the gasoline supply market.

Table 4.6 summarizes the information provided by OPA (1987). OPA members are estimated to collect 20 Igal from each of 700 tanks resulting in an average volume of 15,400 Igal/year. It should be noted that the number of tanks cleaned out per year is far less than the number of businesses selling fuel (4800 to 5400) suggesting that fuel tanks are cleaned on an infrequent basis (ie. approximately every 6 to 8 years). Estimates of tank bottoms collected from main terminals and small bulk plants were also provided although these quantities are not particularly relevant to this study.

Table 4.6  
ESTIMATED ANNUAL QUANTITY OF GASOLINE STORAGE TANK  
BOTTOMS COLLECTED BY OPA MEMBERS (OPA, 1987)

	Estimate of # of Tanks Cleaned Annual	Estimate of Volume Removed per Tank	Estimate of Total Annual Volume Collected
Main Terminals	30 tanks	375 Igal	11,215 Igal
Small Bulk Plants	200 tanks	45 Igal	8,800 Igal
Service Stations	<u>700 tanks</u>	<u>20 Igal</u>	<u>15,400 Igal</u>
Total	930 tanks	440 Igal	35,415 Igal

#### 4.2.4 Waste Coolant

The National Automotive Radiator Service Association (NARSA) was helpful in identifying waste types produced by radiator shops and the usual fate of those wastes (M. Hribar, personal communication, 1987). However, estimated waste quantities of coolant and cleaners used in radiator shops could not be provided by NARSA.

#### 4.2.5 Waste Batteries

The Canadian Association of Recycling Industries (CARI) was contacted in an effort to obtain estimated quantities of waste batteries generated per year in Ontario (R. Graham, personal communication, 1988). Although large receivers were identified (ie. Toronto Refiners and Smelters, Canada Metal and Tonolli), CARI could not furnish quantity estimates. CARI suggested that due to the nature of the scrap metal business in Ontario, which sees many small collectors and many waste batteries changing hands several times prior to recycling, no reliable quantities could be estimated at this time.

#### 4.2.6 Waste Paint Sludge/Filters

CANVIRO (1988) estimated that approximately 103,000 lbs/year of Ignitable Paint Waste is generated by vehicle maintenance activities in Ontario. This quantity is far higher than estimated in this current study, reflecting the uncertainty in the reported waste generation rates. The waste quantity of 103,000 lbs/year is considered as an upper limit for this waste type.

#### 4.2.7 Non-Halogenated Cleaners, Thinners and Solvents

Safety Kleen Canada Ltd. was identified as a major supplier, hauler and receiver of waste solvents (primarily waste naphtha petroleum) and other cleaning products in the service station sector. Safety Kleen's services include providing

solvents for parts cleaners, etc., and periodically picking up the spent solvent for recycling at their U.S. based solvent reprocessing facilities. Safety Kleen representatives were able to estimate that they collect 744,000 lgal/year of spent non-halogenated solvents, primarily waste naptha petroleum (K. Coffin, personal communication, 1987). No estimate of market share could be provided although the majority of survey respondents dealt with Safety Kleen for solvents. Therefore, the quantity of waste solvent collected by Safety Kleen is considered very likely to represent a large as yet unquantified, portion of the non-halogenated waste solvent generated in the province.

The estimate of the portion of non-halogenated solvents collected by Safety Kleen was obtained from the survey responses to product type. Safety Kleen's services were used by 48% of the respondents, Can Am's services were used by 28% and no hauler/receiver was reported by the remaining respondents. An estimated province wide quantity of waste solvents of 1,550,000 lgal/year is obtained by dividing the Safety Kleen volume of 744,000 by 48%. This estimate is likely an upper limit on non-halogenated waste generation.

CANVIRO (1988) estimated that approximately 900,000 lgal/year of spent solvents are produced through vehicle maintenance activities in Ontario. This quantity agrees well with the quantities determined in this study by extrapolation.

#### 4.2.8 Waste Caustic

Waste caustic was found to be generated by two main service stations types: (i) radiator shops and (ii) engine rebuilding shops. These wastes are typically discharged to sanitary sewers following neutralization with caustic.

Strong acid and alkalis quantities were reported as approximately 250,000 lgal/year for vehicle maintenance activities in the province (CANVIRO, 1988). This quantity is somewhat higher than estimated in this study, possibly due to the inclusion of acids as opposed to solely caustics (ie. alkalies). This quantity may be viewed as an upper limit.

#### 4.2.9 Halogenated Waste Cleaners

No other source of waste quantities could be obtained for this waste.

#### 4.3 Evaluation of Waste Estimates

Estimated annual quantities of wastes produced from the survey were evaluated and compared to waste estimates obtained from waste receivers to provide a measure of the reliability of the estimated waste quantities.

#### 4.3.1 Waste Oils

The extrapolated estimates of waste oils produced annually from retail service stations in Ontario appear to be the most accurate of any waste type when compared to waste oil receiver estimates (Table 4.7). Both of the CANVIRO estimates of waste oils produced annually of 13,828,268 and 11,981,379 Igal/year were relatively close to the two industry estimates of 14,285,700 and 12,000,000 Igal, as well as that of CANVIRO (1988). The good agreement obtained for the estimated waste quantities is attributed to better record keeping by service station operators for this waste type. This likely occurred due to the higher number of written waste hauler agreements for this waste type.

#### 4.3.2 Interceptor Wastes

The estimated annual quantities of waste oil/sludge/water from interceptors in Ontario were found to be very low compared to Can Am's estimate (Can Am, 1987). CANVIRO's high estimate was 366,285 Igal of waste compared to Can Am's (1987) estimate of 1,050,000 Igal which is only the interceptor waste received by that one company. Most service stations with interceptors/separators did not provide even a 'guess' as to the quantity of waste oil/sludges produced per year. Therefore it is likely that quantities of waste oil/sludge/water extrapolated from the survey results are low. It is estimated that the actual quantity of this waste generated in Ontario is between the total reported by the receivers contacted (1,320,000 Igal) and that estimated based on average annual clean-outs for each SIC (2,390,590 to 2,758,770 Igal/year).

#### 4.3.3 Gasoline Storage Tank Bottoms

The Ontario Petroleum Association estimated its member companies collected 15,400 gallons of wastewater annually from underground gasoline storage tanks from retail service stations in Ontario (from OPA members). CANVIRO did not estimate a quantity for this waste because of insufficient survey data. Service stations with active, underground gasoline storage tanks ('active' meaning they were still being used for gasoline storage) generally responded that they either did not have any wastewaters from their gasoline storage tanks or that they did not know what quantity of wastewater they produced from their storage tanks per year. The disposal of tank bottoms from gasoline storage tanks at retail service stations is reportedly the responsibility of the gasoline supply company. Disposal of this waste is generally conducted with minimal involvement by the service station manager/attendant which explains the limited amount of waste quantity data obtained for this waste type during the survey.

Table 4.7  
COMPARISON OF WASTE QUANTITY ESTIMATES

Waste Type	Units	Estimate A (Rounded to Hundreds)	Estimate B	Accepted by Individual Receivers	Province Wide Waste, Generation	Source	Comments
1. Waste Oil	Igal	13,828,268	11,981,379	10,000,000 1,500,000	14,285,700 NA	Can Am (1987) Canadian Oil (1987) Canadian Oil (1987) CANVIRO (1988)	Reported 70% market share  Estimated from sales of used oil
2. Interceptor Wastes	Igal	366,285	317,231	1,050,000 270,000	NA NA	Can Am (1987) Canadian Oil (1987)	Estimated 1% oil  Upper limit (see Section 4.2.2)
3. Gasoline Storage Tank Bottoms	Igal	NC	NC	15,400	NA	OPA (1987)	Represents large market share
4. Waste Coolant	Igal	750,159	649,824	NA	NA	-	-
5. Waste Batteries	each	947,014	820,236	NA	NA	-	-
6. Waste Paint Sludge/ Filters	lbs	40,070	34,716	NA	103,000	CANVIRO (1988)	-
7. Non-halogenated Cleaners, Thinners	Igal	949,502	822,713	744,000	NA	Safety Kleen (1987)	Represents large market share (see Section 4.2.7)  Upper limit (see Section 4.2.7)
8. Waste Caustic	Igal	65,122	56,360	NA	1,550,000 900,000	CANVIRO (1988)	-
9. Halogenated Cleaners	Igal	14,513	12,563	NA	250,000 NA	CANVIRO (1988)	-

NC - Not calculated due to insufficient responses.

NA - No estimate available.

1 - Actual quantities of waste accepted by individual receivers (see Section 4.2).

2 - Extrapolated provincial quantities from receiver quantities and respective market shares (see Section 4.2).

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION M

WASTE TYPE :	1	2	3	4	5	6	7	8	9
UNITS :	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542 :	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539 :	20	ERR	ERR	50	ERR	0	ERR	ERR	ERR
7538 :	357	700	ERR	4	10	ERR	19	ERR	ERR
7536 :	200	ERR	ERR	0	0	ERR	50	ERR	ERR
7535 :	300	ERR	ERR	0	40	ERR	25	ERR	ERR
7512 :	200	ERR	ERR	200	0	ERR	ERR	ERR	ERR
5926 :	500	ERR	ERR	ERR	3	ERR	ERR	ERR	ERR
5571 :	200	ERR	ERR	8	20	ERR	10	ERR	ERR
5559 :	200	ERR	ERR	ERR	20	ERR	0	ERR	ERR
5541 :	200	ERR	ERR	ERR	5	ERR	20	ERR	ERR
5521 :	500	ERR	ERR	ERR	20	ERR	0	ERR	ERR
5511 :	375	0	ERR	60	ERR	ERR	30	ERR	ERR
4512 :	240	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
4469 :	ERR	ERR	ERR	ERR	30	ERR	ERR	ERR	ERR
3713 :	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
3594 :	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

ERR No sample occurrences

MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION M

WASTE TYPE :	1	2	3	4	5	6	7	8	9
UNITS :	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542 :	60	850	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7539 :	ERR	0	ERR	0	ERR	ERR	ERR	185	300
7538 :	400	0	ERR	10	19	ERR	16	ERR	ERR
7536 :	500	400	ERR	ERR	3	ERR	63	ERR	ERR
7535 :	ERR	ERR	ERR	ERR	ERR	0	0	ERR	ERR
7512 :	273	ERR	ERR	ERR	0	ERR	10	ERR	ERR
5926 :	ERR	ERR	ERR	ERR	15	ERR	ERR	ERR	ERR
5571 :	101	ERR	ERR	ERR	30	ERR	45	ERR	ERR
5559 :	103	ERR	ERR	ERR	1	ERR	0	ERR	ERR
5541 :	340	ERR	ERR	0	73	ERR	50	ERR	ERR
5521 :	191	ERR	ERR	0	7	0	7	ERR	ERR
5511 :	692	ERR	ERR	0	9	ERR	30	ERR	ERR
4512 :	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
4469 :	65	ERR	ERR	ERR	12	ERR	16	ERR	ERR
3713 :	ERR	ERR	ERR	ERR	5	ERR	10	ERR	ERR
3594 :	240	ERR	ERR	0	ERR	ERR	195	350	ERR

ERR No sample occurrences



MEAN WASTE QUANTITIES STORED FOR GEOGRAPHIC REGION P

WASTE TYPE	1	2	3	4	5	6	7	8	9
UNITS	gal	gal	gal	gal	each	lbs	gal	gal	gal
SIC 7542	400	ERR	ERR	ERR	50	ERR	4	ERR	ERR
7539	ERR	ERR	ERR	ERR	ERR	ERR	ERR	400	ERR
7538	193	ERR	ERR	0	41	ERR	9	ERR	ERR
7536	500	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
7535	ERR	ERR	ERR	ERR	ERR	ERR	22	ERR	ERR
7512	500	ERR	ERR	0	6	ERR	55	ERR	ERR
5926	200	ERR	ERR	ERR	20	ERR	12	ERR	ERR
5571	500	ERR	ERR	ERR	20	ERR	5	ERR	ERR
5559	45	ERR	ERR	ERR	0	ERR	ERR	ERR	ERR
5541	273	ERR	0	ERR	5	ERR	45	ERR	ERR
5521	135	ERR	ERR	0	3	ERR	0	ERR	ERR
5511	200	120	ERR	ERR	0	ERR	0	ERR	ERR
4512	45	ERR	ERR	ERR	ERR	ERR	10	ERR	ERR
4469	40	ERR	ERR	ERR	300	ERR	10	ERR	ERR
3713	ERR	ERR	ERR	ERR	ERR	0	10	ERR	ERR
3594	45	ERR	ERR	ERR	ERR	ERR	ERR	400	ERR

ERR No sample occurrences



Appendix C-4

Extrapolated Waste Quantities for  
Each Geographic Region







Appendix D

D-1 Coding Description

D-2 Basic Company Information - Survey Database

D-3 Basic Company Information - Unused and  
Non-Responding Service Stations





Appendix D-1  
Coding Description



CON	PSA	SIC	NAME	ADDRESS	CITY	PR	PCDE	PHONE	RE	UML	LEA	DIE	PRO	FT	SEMP.	2	3	4	5	6	7	8	9	10	TEL	MC	MI	MA	MP	CONTACT PERSON
																OTHER SIC NUMBERS PER POLK PRINTOUT														
																FUEL SALES BRNCH														
																FUEL SALES (by 1 sold)														
																UNLEADED														
																LEADED														
																DIESEL														
																PROPANE														
																NUMBER OF EMPLOYEES														
																Full time														
																Part time														
																PRIMARY STANDARD INDUSTRIAL CODE (SIC)														
																PAGE NUMBER from Polk masterlist														
																SECONDARY SIC CODES														
																As per Polk masterlist														
																RESPONSE CODE														
																0. Not interested														
																1. Out of business/Not in business/Not required														
																2. Moved														
																3. Address information incomplete as per Polk														
																4. Questionnaire response by mail														
																5. No response from mail/Information from phone interview														
																6. New location picked														
																7. Onsite visit														
																NUMBER OF CALLS MADE														
																TELEPHONE CALL CODE														
																0. No call made														
																1. Correct person contacted (All information obtained)														
																2. Correct person contacted (Not interested)														
																3. Number does not exist/No number found														
																4. Not needed														



Appendix D-2

Basic Company Information - Survey Database





## RETAIL SERVICE STATION SURVEY / BASIC COMPANY STATISTICS/ SURVEY DATABASE

CDB		PDB		PSC		NAME		ADDRESS		CITY		PR		PCDE		PHONE		RE		UNL		SALES		BKDN		TEMP.		OTHER SIC		NUMBERS		PER		PULK		PRINTOUT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
148	478	5371	UNITED	MOTOR	SALES	149	430	7338	UNITED	MOTOR	SALES	150	430	7338	UNITED	MOTOR	SALES	151	430	7338	UNITED	MOTOR	SALES	152	430	7338	UNITED	MOTOR	SALES	153	430	7338	UNITED	MOTOR	SALES	154	430	7338	UNITED	MOTOR	SALES	155	430	7338	UNITED	MOTOR	SALES	156	430	7338	UNITED	MOTOR	SALES	157	430	7338	UNITED	MOTOR	SALES	158	430	7338	UNITED	MOTOR	SALES	159	430	7338	UNITED	MOTOR	SALES	160	430	7338	UNITED	MOTOR	SALES	161	430	7338	UNITED	MOTOR	SALES	162	430	7338	UNITED	MOTOR	SALES	163	430	7338	UNITED	MOTOR	SALES	164	430	7338	UNITED	MOTOR	SALES	165	430	7338	UNITED	MOTOR	SALES	166	430	7338	UNITED	MOTOR	SALES	167	430	7338	UNITED	MOTOR	SALES	168	430	7338	UNITED	MOTOR	SALES	169	430	7338	UNITED	MOTOR	SALES	170	430	7338	UNITED	MOTOR	SALES	171	430	7338	UNITED	MOTOR	SALES	172	430	7338	UNITED	MOTOR	SALES	173	430	7338	UNITED	MOTOR	SALES	174	430	7338	UNITED	MOTOR	SALES	175	430	7338	UNITED	MOTOR	SALES	176	430	7338	UNITED	MOTOR	SALES	177	430	7338	UNITED	MOTOR	SALES	178	430	7338	UNITED	MOTOR	SALES	179	430	7338	UNITED	MOTOR	SALES	180	430	7338	UNITED	MOTOR	SALES	181	430	7338	UNITED	MOTOR	SALES	182	430	7338	UNITED	MOTOR	SALES	183	430	7338	UNITED	MOTOR	SALES	184	430	7338	UNITED	MOTOR	SALES	185	430	7338	UNITED	MOTOR	SALES	186	430	7338	UNITED	MOTOR	SALES	187	430	7338	UNITED	MOTOR	SALES	188	430	7338	UNITED	MOTOR	SALES	189	430	7338	UNITED	MOTOR	SALES	190	430	7338	UNITED	MOTOR	SALES	191	430	7338	UNITED	MOTOR	SALES	192	430	7338	UNITED	MOTOR	SALES	193	430	7338	UNITED	MOTOR	SALES	194	430	7338	UNITED	MOTOR	SALES	195	430	7338	UNITED	MOTOR	SALES	196	430	7338	UNITED	MOTOR	SALES	197	430	7338	UNITED	MOTOR	SALES	198	430	7338	UNITED	MOTOR	SALES	199	430	7338	UNITED	MOTOR	SALES	200	430	7338	UNITED	MOTOR	SALES	201	430	7338	UNITED	MOTOR	SALES	202	430	7338	UNITED	MOTOR	SALES	203	430	7338	UNITED	MOTOR	SALES	204	430	7338	UNITED	MOTOR	SALES	205	430	7338	UNITED	MOTOR	SALES	206	430	7338	UNITED	MOTOR	SALES	207	430	7338	UNITED	MOTOR	SALES	208	430	7338	UNITED	MOTOR	SALES	209	430	7338	UNITED	MOTOR	SALES	210	430	7338	UNITED	MOTOR	SALES	211	430	7338	UNITED	MOTOR	SALES	212	430	7338	UNITED	MOTOR	SALES	213	430	7338	UNITED	MOTOR	SALES	214	430	7338	UNITED	MOTOR	SALES	215	430	7338	UNITED	MOTOR	SALES	216	430	7338	UNITED	MOTOR	SALES	217	430	7338	UNITED	MOTOR	SALES	218	430	7338	UNITED	MOTOR	SALES	219	430	7338	UNITED	MOTOR	SALES	220	430	7338	UNITED	MOTOR	SALES	221	430	7338	UNITED	MOTOR	SALES	222	430	7338	UNITED	MOTOR	SALES	223	430	7338	UNITED	MOTOR	SALES	224	430	7338	UNITED	MOTOR	SALES	225	430	7338	UNITED	MOTOR	SALES	226	430	7338	UNITED	MOTOR	SALES	227	430	7338	UNITED	MOTOR	SALES	228	430	7338	UNITED	MOTOR	SALES	229	430	7338	UNITED	MOTOR	SALES	230	430	7338	UNITED	MOTOR	SALES	231	430	7338	UNITED	MOTOR	SALES	232	430	7338	UNITED	MOTOR	SALES	233	430	7338	UNITED	MOTOR	SALES	234	430	7338	UNITED	MOTOR	SALES	235	430	7338	UNITED	MOTOR	SALES	236	430	7338	UNITED	MOTOR	SALES	237	430	7338	UNITED	MOTOR	SALES	238	430	7338	UNITED	MOTOR	SALES	239	430	7338	UNITED	MOTOR	SALES	240	430	7338	UNITED	MOTOR	SALES	241	430	7338	UNITED	MOTOR	SALES	242	430	7338	UNITED	MOTOR	SALES	243	430	7338	UNITED	MOTOR	SALES	244	430	7338	UNITED	MOTOR	SALES	245	430	7338	UNITED	MOTOR	SALES	246	430	7338	UNITED	MOTOR	SALES	247	430	7338	UNITED	MOTOR	SALES	248	430	7338	UNITED	MOTOR	SALES	249	430	7338	UNITED	MOTOR	SALES	250	430	7338	UNITED	MOTOR	SALES	251	430	7338	UNITED	MOTOR	SALES	252	430	7338	UNITED	MOTOR	SALES	253	430	7338	UNITED	MOTOR	SALES	254	430	7338	UNITED	MOTOR	SALES	255	430	7338	UNITED	MOTOR	SALES	256	430	7338	UNITED	MOTOR	SALES	257	430	7338	UNITED	MOTOR	SALES	258	430	7338	UNITED	MOTOR	SALES	259	430	7338	UNITED	MOTOR	SALES	260	430	7338	UNITED	MOTOR	SALES	261	430	7338	UNITED	MOTOR	SALES	262	430	7338	UNITED	MOTOR	SALES	263	430	7338	UNITED	MOTOR	SALES	264	430	7338	UNITED	MOTOR	SALES	265	430	7338	UNITED	MOTOR	SALES	266	430	7338	UNITED	MOTOR	SALES	267	430	7338	UNITED	MOTOR	SALES	268	430	7338	UNITED	MOTOR	SALES	269	430	7338	UNITED	MOTOR	SALES	270	430	7338	UNITED	MOTOR	SALES	271	430	7338	UNITED	MOTOR	SALES	272	430	7338	UNITED	MOTOR	SALES	273	430	7338	UNITED	MOTOR	SALES	274	430	7338	UNITED	MOTOR	SALES	275	430	7338	UNITED	MOTOR	SALES	276	430	7338	UNITED	MOTOR	SALES	277	430	7338	UNITED	MOTOR	SALES	278	430	7338	UNITED	MOTOR	SALES	279	430	7338	UNITED	MOTOR	SALES	280	430	7338	UNITED	MOTOR	SALES	281	430	7338	UNITED	MOTOR	SALES	282	430	7338	UNITED	MOTOR	SALES	283	430	7338	UNITED	MOTOR	SALES	284	430	7338	UNITED	MOTOR	SALES	285	430	7338	UNITED	MOTOR	SALES	286	430	7338	UNITED	MOTOR	SALES	287	430	7338	UNITED	MOTOR	SALES	288	430	7338	UNITED	MOTOR	SALES	289	430	7338	UNITED	MOTOR	SALES	290	430	7338	UNITED	MOTOR	SALES	291	430	7338	UNITED	MOTOR	SALES	292	430	7338	UNITED	MOTOR	SALES	293	430	7338	UNITED	MOTOR	SALES	294	430	7338	UNITED	MOTOR	SALES	295	430	7338	UNITED	MOTOR	SALES	296	430	7338	UNITED	MOTOR	SALES	297	430	7338	UNITED	MOTOR	SALES	298	430	7338	UNITED	MOTOR	SALES	299	430	7338	UNITED	MOTOR	SALES	300	430	7338	UNITED	MOTOR	SALES	301	430	7338	UNITED	MOTOR	SALES	302	430	7338	UNITED	MOTOR	SALES	303	430	7338	UNITED	MOTOR	SALES	304	430	7338	UNITED	MOTOR	SALES	305	430	7338	UNITED	MOTOR	SALES	306	430	7338	UNITED	MOTOR	SALES	307	430	7338	UNITED	MOTOR	SALES	308	430	7338	UNITED	MOTOR	SALES	309	430	7338	UNITED	MOTOR	SALES	310	430	7338	UNITED	MOTOR	SALES	311	430	7338	UNITED	MOTOR	SALES	312	430	7338	UNITED	MOTOR	SALES	313	430	7338	UNITED	MOTOR	SALES	314	430	7338	UNITED	MOTOR	SALES	315	430	7338	UNITED	MOTOR	SALES	316	430	7338	UNITED	MOTOR	SALES	317	430	7338	UNITED	MOTOR	SALES	318	430	7338	UNITED	MOTOR	SALES	319	430	7338	UNITED	MOTOR	SALES	320	430	7338	UNITED	MOTOR	SALES	321	430	7338	UNITED	MOTOR	SALES	322	430	7338	UNITED	MOTOR	SALES	323	430	7338	UNITED	MOTOR	SALES	324	430	7338	UNITED	MOTOR	SALES	325	430	7338	UNITED	MOTOR	SALES	326	430	7338	UNITED	MOTOR	SALES	327	430	7338	UNITED	MOTOR	SALES	328	430	7338	UNITED	MOTOR	SALES	329	430	7338	UNITED	MOTOR	SALES	330	430	7338	UNITED	MOTOR	SALES	331	430	7338	UNITED	MOTOR	SALES	332	430	7338	UNITED	MOTOR	SALES	333	430	7338	UNITED	MOTOR	SALES	334	430	7338	UNITED	MOTOR	SALES	335	430	7338	UNITED	MOTOR	SALES	336	430	7338	UNITED	MOTOR	SALES	337	430	7338	UNITED	MOTOR	SALES	338	430	7338	UNITED	MOTOR	SALES	339	430	7338	UNITED	MOTOR	SALES	340	430	7338	UNITED	MOTOR	SALES	341	430	7338	UNITED	MOTOR	SALES	342	430	7338	UNITED	MOTOR	SALES	343	430	7338	UNITED	MOTOR	SALES	344	430	7338	UNITED	MOTOR	SALES	345	430	7338	UNITED	MOTOR	SALES	346	430	7338	UNITED	MOTOR	SALES	347	430	7338	UNITED	MOTOR	SALES	348	430	7338	UNITED	MOTOR	SALES	349	430	7338	UNITED	MOTOR	SALES	350	430	7338	UNITED	MOTOR	SALES	351	430	7338	UNITED	MOTOR	SALES	352	430	7338	UNITED	MOTOR	SALES	353	430	7338	UNITED	MOTOR	SALES	354	430	7338	UNITED	MOTOR	SALES	355	430	7338	UNITED	MOTOR	SALES	356	430	7338	UNITED	MOTOR	SALES	357	430	7338	UNITED	MOTOR	SALES	358	430	7338	UNITED	MOTOR	SALES	359	430	7338	UNITED	MOTOR	SALES	360	430	7338	UNITED	MOTOR	SALES	361	430	7338	UNITED	MOTOR	SALES	362	430	7338	UNITED	MOTOR	SALES	363	430	7338	UNITED	MOTOR	SALES	364	430	7338	UNITED	MOTOR	SALES	365	430	7338	UNITED	MOTOR	SALES	366	430	7338	UNITED	MOTOR	SALES	367	430	7338	UNITED	MOTOR	SALES	368	430	7338	UNITED	MOTOR	SALES	369	430	7338	UNITED	MOTOR	SALES	370	430	7338	UNITED	MOTOR	SALES	371	430	7338	UNITED	MOTOR	SALES	372	430	7338	UNITED	MOTOR	SALES	373	430	7338	UNITED	MOTOR	SALES	374	430	7338	UNITED	MOTOR	SALES	375	430	7338	UNITED	MOTOR	SALES	376	430	7338	UNITED	MOTOR	SALES	377	430	7338	UNITED	MOTOR	SALES	378	430	7338	UNITED	MOTOR	SALES	379	430	7338	UNITED	MOTOR	SALES	380	430	7338	UNITED	MOTOR	SALES	381	430	7338	UNITED	MOTOR	SALES	382	430	7338	UNITED	MOTOR	SALES	383	430	7338	UNITED	MOTOR	SALES	384	430	7338	UNITED	MOTOR	SALES	385	430	7338	UNITED	MOTOR	SALES	386	430	7338	UNITED	MOTOR	SALES	387	430	7338	UNITED	MOTOR	SALES	388	430	7338	UNITED	MOTOR	SALES	389	430	7338	UNITED	MOTOR	SALES	390	430	7338	UNITED	MOTOR	SALES	391	430	7338	UNITED	MOTOR	SALES	392	430	7338	UNITED	MOTOR	SALES	393	430	7338	UNITED	MOTOR	SALES	394	430	7338	UNITED	MOTOR	SALES	395	430	7338	UNITED	MOTOR	SALES	396	430	7338	UNITED	MOTOR	SALES	397	430	7338	UNITED	MOTOR	SALES	398	430	7338	UNITED	MOTOR	SALES	399	430	7338	UNITED	MOTOR	SALES	400	430	7338	UNITED	MOTOR	SALES	401	430	7338	UNITED	MOTOR	SALES	402	430	7338	UNITED	MOTOR	SALES	403	430	7338	UNITED	MOTOR	SALES	404	430	7338	UNITED	MOTOR	SALES	405	430	7338	UNITED	MOTOR	SALES	406	430	7338	UNITED	MOTOR	SALES	407	430	7338	UNITED	MOTOR	SALES	408	430	7338	UNITED	MOTOR	SALES	409	430	7338	UNITED	MOTOR	SALES	410	430	7338	UNITED	MOTOR	SALES	411	430	7338	UNITED	MOTOR	SALES	412	430	7338	UNITED	MOTOR	SALES	413	430	7338	UNITED	MOTOR	SALES	414	430	7338	UNITED	MOTOR	SALES	415	430	7338	UNITED	MOTOR	SALES	416	430	7338	UNITED	MOTOR	SALES	417	430	7338	UNITED	MOTOR	SALES	418	430	7338	UNITED	MOTOR	SALES</



## RETAIL SERVICE STATION SURVEY / BASIC COMPANY STATISTICS/ SURVEY DATABASE

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## RETAIL SERVICE STATION SURVEY / BASIC COMPANY STATISTICS/ SURVEY DATABASE

COR	PSG	PSIC NAME	ADDRESS	CITY	PR	PCDE	PHONE	RE	UNL	LEA	BIE	PRO	FT	PI	4EMP.	SIC	DHNR	PER POLK	PRINTOUT	
298	829	5926 THE BATTERY PRO	355 WEBER ST. W.	WATERLOO	ONT.M7J	3H8	519 886 5680	7	0	0	0	0	0	1	0	0	0	0	0	
299	829	5311 WATERLOO TOYOTA	WEBER ST. W.	WATERLOO	ONT.M7J	3B5		7	0	0	0	0	0	18	1	0	0	0	0	
300	829	5311 WATERLOO MISSAM	35 WEBER ST. W.	WATERLOO	ONT.M7J	3B5		7	0	0	0	0	0	20	0	0	0	0	0	
301	830	7335 WATERLOO AUTO COLLISION	379 WEBER ST. W.	WATERLOO	ONT.M7J	3J2	519 884 3660	7	0	0	0	0	0	0	0	0	0	0	0	
302	830	5359 TOLKO SERVICE CENTRE	379 WEBER ST. W.	WATERLOO	ONT.M7J	3J2	519 884 4527	7	0	0	0	0	0	3	0	0	0	0	0	
303	830	5321 R & L MOTORS	379 WEBER ST. W.	WATERLOO	ONT.M7J	3J2	519 884 7111	7	0	0	0	0	0	5	0	0	0	0	0	
304	831	7335 LANCASTER AUTO BODY	14 BLOOMINGDALE RD.	KITCHENER	ONT.M7V	1A1	519 743 7891	7	0	0	0	0	0	3	0	0	0	0	0	
305	831	5371 TRI CITY CYCLE	133 LEICESTER CR.	WATERLOO	ONT.M7J	4H8	519 886 6410	7	0	0	0	0	1	1	0	0	0	0	0	
306	831	5359 CENTRAL ONTARIO CYCLE	30 COLUMBIA ST. E.	WATERLOO	ONT.M7J	4L7	519 886 0710	5	0	0	0	0	5	2	5571	3621	3011	3761	0	
307	0	3394						7	0	0	0	0	0	9	0	0	0	0	0	
308	832	3713 YOU FILL IT	76 WOODNICH ST.	KITCHENER	ONT.M7X	1J3		7	0	0	0	0	0	0	0	0	0	0	0	
309	834	7342 COLUMBIA SHELL	360 PHILLIP ST.	WATERLOO	ONT.M7L	5S1	519 885 0670	7	80	20	0	0	0	4	3	0	0	0	0	
310	834	3713 R & M CUSTOM UPOLSTERING	420 WEBER ST. W.	WATERLOO	ONT.M7L	4E7	519 885 2691	7	0	0	0	0	0	0	0	0	0	0	0	
311	835	7338 SUNDOK STATION	270 VICTORIA ST. S.	KITCHENER	ONT.M7M	3B4	519 745 6251	7	0	0	0	0	0	8	0	0	0	0	0	
312	835	5341 FOREST MILL SERVICE CENTRE	433 GREENBROOK DR.	KITCHENER	ONT.M7M	3C1	519 745 1331	5	80	70	0	0	7	3	7500	0	0	0	0	
313	836	7342 610 CAR WASH	426 HIGHLAND ST. W.	KITCHENER	ONT.M7M	3C7	519 576 4280	5	40	50	10	0	3	7	7500	0	0	0	0	
314	836	7338 BURNS & LAKE PETRO CANADA	125 HIGHLAND RD. E.	KITCHENER	ONT.M7M	3V8	519 744 8311	6	87	33	0	0	2	1	5341	7344	5312	7341	7500	
315	837	7342 NU-LOOK	529 BELMONT RD.	KITCHENER	ONT.M7J	3H6	519 744 5151	7	0	0	0	0	0	4	0	0	0	0	0	
316	841	5321 SAVENAY MOTORS	738 HESPELER RD.	CAMBRIDGE	ONT.M3M	4R7	519 623 1040	5	0	0	0	0	0	2	0	7338	5331	7500	0	
319	844	7335 SAVAGE AUTO BODY	101 BONNIE CR.	ELMIRA	ONT.M3M	3E2	519 669 8330	5	0	0	0	0	0	0	0	0	0	0	0	
320	845	7512 THRIFTY RENT A CAR	160 CHARLING CROSS	BRANTFORD	ONT.M3R	234	519 736 3779	5	0	0	0	0	0	2	0	7500	7552	0	0	
321	848	7538 J. TAMBL'S AUTOMOTIVE	27 NEWPORT ST.	BRANTFORD	ONT.M3S	2M1	519 732 7200	5	0	0	0	0	0	2	2	7517	4112	7513	0	
323	857	7338 LYNNWOOD TEARCO	122 NORFOLK ST. N.	SIMCOE	ONT.M3Y	2M2	519 426 7500	5	75	25	0	0	3	2	5341	7500	0	0	0	
325	867	7338 LAMB'S SERVICE	192 10TH. ST.	HANOVER	ONT.M4M	1M7	519 364 4200	4	0	0	0	0	1	0	7500	0	0	0	0	
326	867	7338 LAMB'S SERVICE	192 10TH. ST.	HANOVER	ONT.M4M	1M7	519 364 4200	4	0	0	0	0	1	0	7500	0	0	0	0	
327	867	7338 LAMB'S SERVICE	192 10TH. ST.	HANOVER	ONT.M4M	1M7	519 364 4200	4	0	0	0	0	1	0	7500	0	0	0	0	
328	867	7338 LAMB'S SERVICE	192 10TH. ST.	HANOVER	ONT.M4M	1M7	519 364 4200	4	0	0	0	0	1	0	7500	0	0	0	0	
329	867	7338 LAMB'S SERVICE	192 10TH. ST.	HANOVER	ONT.M4M	1M7	519 364 4200	4	0	0	0	0	1	0	7500	0	0	0	0	
330	867	7338 LAMB'S SERVICE	192 10TH. ST.	HANOVER	ONT.M4M	1M7	519 364 4200	4	0	0	0	0	1	0	7500	0	0	0	0	
331	883	5341 D 1 OIL CO.	1070 TALBOT ST.	ST. THOMAS	ONT.M3A	3K1	519 271 7770	5	75	25	0	0	12	5	3541	7500	0	0	0	
332	883	5341 D 1 OIL CO.	1070 TALBOT ST.	ST. THOMAS	ONT.M3A	3K1	519 271 7770	5	75	25	0	0	12	5	3541	7500	0	0	0	
333	888	7335 OIL CARD CANADA	2350 DUNDAS ST.	LONDON	ONT.M3V	1R5	519 433 3600	4	0	0	0	0	0	1	7500	7552	0	0	0	
334	892	7342 PERMA SHINE	1110 FLORENCE ST.	LONDON	ONT.M3M	2M9	519 433 8910	5	0	0	0	0	1	1	7500	7552	0	0	0	
335	895	3713 D&D CUSTOM	1793 DUNDAS ST.	LONDON	ONT.M3M	3E3	519 433 5800	6	0	0	0	0	1	1	5332	7300	5331	5312	0	
336	896	5926 BATTERY RECONDITIONING	821 CENTRAL	LONDON	ONT.M3M	3R1	519 434 3971	6	0	0	0	0	0	2	1	3623	3623	0	0	0
338	899	5341 T ELEVEN FOOD STORES	1706 ADELAIDE ST. W.	LONDON	ONT.M3Y	2L9	510 434 0663	5	75	25	0	0	10	1	7500	5331	5451	5411	0	
339	900	5331 COMPETITION MOTORS	7206 OXFORD ST. E.	LONDON	ONT.M3Y	3R3	519 431 3880	4	0	0	0	0	13	2	5321	7338	5313	7512	5331	
341	903	5321 EQUITY MARKETING & LEASING LTD.	197 AMN ST.	LONDON	ONT.M6A	1R4	519 663 2266	4	0	0	0	0	6	2	7338	5311	7500	5321	5331	
343	907	7338 6. BOOK AUTO REPAIR	499 GREY ST.	LONDON	ONT.M6B	1M4	519 433 3671	4	0	0	0	0	3	1	7500	0	0	0	0	
344	907	7312 INTERIOR RENT A CAR INC.	288 HORTON ST.	LONDON	ONT.M6B	1L4	519 677 5365	5	0	0	0	0	3	0	7513	4112	7517	0	0	
345	915	5341 STERLING GAS BARS	1470 WELLINGTON RD.	LONDON	ONT.M6H	4S0	519 681 5072	5	70	20	10	0	4	4	7500	0	0	0	0	
347	923	7335 HIGH ST. AUTO BODY	324 HIGH ST.	STRAIRSDY	ONT.M7B	3M4	519 245 2412	5	0	0	0	0	4	0	7338	1345	1500	7500	0	
349	926	7312 LEADER LEASING LTD.	352 RICHMOND ST.	CHATHAM	ONT.M7M	1P8	519 351 4212	4	0	0	0	0	0	0	1	7513	7517	0	0	
350	927	7338 SOUTH SIDE TONING	709 PARK AVE. W.	CHATHAM	ONT.M7H	1M3	519 334 3228	5	0	0	0	0	0	4	2	7544	7349	7500	0	
351	937	7338 J & B SUMOCO SERVICE CENTRE	789 INDIAN ST. N.	SARITA	ONT.M71	7E9	519 344 0359	5	60	40	0	0	5	7	7544	5331	5341	7500	0	
352	933	5341 WALKER DISCOUNT GAS	3472 WALKER RD.	WINDSOR	ONT.M8M	3S3	519 966 3323	4	25	20	55	0	0	1	7500	0	0	0	0	
354	957	5311 WINDSOR WATCO	2557 DUTY PLACE	WINDSOR	ONT.M8T	2M5	519 969 7110	4	0	0	0	0	7	0	7500	5321	7338	5331	0	
355	964	5321 WYANDOTTE AUTO SALES	1165 WYANDOTTE ST. W.	WINDSOR	ONT.M9A	614	519 233 5878	6	0	0	0	0	3	0	7338	7500	7349	5306	7336	
357	967	4449 MYL COVE MARINA	90 MILL ST.	WINDSOR	ONT.M9C	2P8	519 232 7289	5	0	0	0	0	2	1	0	0	0	0	0	
359	980	7335 WODGE AUTO BODY INC.	16 ARNSTRONG ST.	BRACERIDGE	ONT.P0C	1M0	705 375 2002	5	25	75	0	0	2	2	5341	7349	7500	0	0	
360	984	7338 BURMAN'S MOTORS & LUNCH BAR	30 HIGH ST.	RACIER	ONT.P0J	1C0	705 679 5711	5	60	40	0	0	1	1	5341	7300	0	0	0	
361	995	7338 CUII 5' SHILL SERVICE	7 SILVER BT.	COBALT	ONT.P0M	1K0	705 844 0601	5	60	39	0	0	1	3	4	7349	5341	7500	0	
363	1015	7338 MICY 5 AUTO CLINIC	254 STATION RD.	CHAPLAIN	ONT.P0P	1C0	705 869 1110	5	67	33	0	0	5	3	7549	7500	0	0	0	
367	1015	5321 SCOTT MOTOR SALES	387 REAR	ESPANOLA	ONT.P0P	1C0	705 869 1360	5	0	0	0	0	3	0	7339	7500	0	0	0	





Appendix D-3

Basic Company Information - Unused and  
Non-Responding Service Stations



## RETAIL SERVICE STATION SURVEY / BASIC COMPANY STATISTICS / UNUSED, NON-RESPONDING DATABASE

[illegible]

[illegible][illegible]



Appendix E

E-1 Coding Description

E-2 Waste Characteristics for Survey Database



Appendix E-1  
Coding Description



## CODING DESCRIPTIONS FOR THE RETAIL SERVICE STATIONS / WASTE FILE

[illegible]



Appendix E-2

Waste Characteristics for Survey Database





[illegible]

## RETAIL SERVICE STATION SURVEY/WASTE FILE

### NATURE OF BUSINESS RESPONSES

COD	P61	PSIC	ID.GTYREP	UT DM	GTYSTD	UT DM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOT	WASTE HAULER NAME	REGION	
45	106	5511	7	17A 1B	1	20 1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	K	
45	106	5511	5	10 EA	4	6 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
46	112	7538	7	45 1B	1	15 1B	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	K	
46	112	7538	1	100 1B	1	45 1B	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LACOMBE	K	
46	112	7538	5	10 EA	4	10 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
48	122	7538	7	20 1B	1	20 1B	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	K	
48	122	7538	5	100 EA	4	10 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
48	122	7538	1	750 1B	1	500 1B	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	K	
50	124	7535	7	15 1B	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
51	132	7538	5	20 1B	4	20 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
51	132	7538	1	72 1B	2	45 1B	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
52	136	5541	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
53	137	5926	7	120 1B	1	30 1B	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	K	
53	137	5926	5	3000 EA	4	30 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0		K	
54	142	5511	5	120 EA	4	10 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
54	142	5511	2	10 1B	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CANADIAN OIL	K	
54	142	5511	7	45 1B	0	45 1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
54	142	5511	1	3000 1B	1	500 1B	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2 CANADIAN OIL	K	
55	142	7538	1	1320 1B	1	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8 CAN-AM OIL	K	
55	142	7538	5	300 EA	4	50 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FORT BATTERY SERVICE	K	
56	143	7512	5	120 EA	4	10 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
56	143	7512	7	10 1B	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	K	
56	143	7512	1	300 1B	1	300 1B	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2 CANADIAN OIL	K	
57	151	5541	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
58	152	7538	1	350 1B	1	200 1B	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CAN-AM OIL	K	
58	152	7538	4	20 1B	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
58	152	7538	7	10 1B	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
58	152	7538	5	20 EA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
58	152	7538	7	10 1B	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
59	153	7535	7	30 1B	5	5 1B	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		K
60	154	5521	1	200 1B	1	200 1B	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2 CAN-AM OIL	K	
60	154	5521	4	50 1B	6	5 1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
60	154	5521	5	7 EA	4	2 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
61	164	7538	5	4 EA	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
61	164	7538	1	12 1B	2	5 1B	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		K
61	164	7538	1	12 1B	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
62	172	7538	7	10 1B	1	5 1B	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	K
62	172	7538	4	50 1B	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
62	172	7538	1	400 1B	1	200 1B	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CAN-AM OIL	K	
62	172	7538	5	50 EA	4	10 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		K	
63	189	5541	1	600 1B	1	200 1B	0	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6 CLAUDE HARNES	L	
63	189	5541	4	180 1B	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		L	
63	189	5541	5	60 EA	4	6 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		L	
64	189	7538	5	200 EA	4	10 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		L	
64	189	7538	1	1000 1B	1	500 1B	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CLAUDE HARNES	L	
64	189	7538	7	20 1B	6	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		L	
66	192	7535	7	60 1B	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		L	
67	195	5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1		L	
69	200	7538	4	20 1B	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		L	
69	200	7538	5	72 EA	4	260 EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		L	
69	200	7538	1	360 1B	1	500 1B	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 CAN-AM OIL	L	
69	200	7538	7	24 1B	1	2 1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	L
70	204	5541	4	250 1B	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CANADIAN OIL	L



## RETAIL SERVICE STATION SURVEY/WASIE FILE

### NATURE OF BUSINESS RESPONSES

[illegible]



## RETAIL SERVICE STATION SURVEY/WASTE FILE

[illegible]

## RETAIL SERVICE STATION SURVEY/WASTE FILE

												NATURE OF BUSINESS RESPONSES																														
CON	PG#	PSIC	ID	QTY	REP	UT	DM	QTY	STG	UT	DM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOT	WASTE HAULER NAME	REGION					
217	635	7538	1	3600	16	1		500	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	ABDA	M			
217	635	7538	5	144	EA	4		25	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M				
217	635	7538	4	40	1B	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M				
219	639	3713	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	M					
220	639	5511	7	120	16	1		60	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M				
220	639	5511	7	180	16	1		15	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M				
220	639	5511	4	120	16	1		60	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M				
220	639	5511	2	100	16	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M				
220	639	5511	1	360	16	1		250	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	CAN-AM OIL	M		
222	645	7538	1	1200	16	1		200	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	M		
222	645	7538	5	24	EA	4		15	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
222	645	7538	4	225	16	6		28	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
223	649	7512	1	100	16	1		200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	CAN-AM OIL	M		
223	649	7512	4	100	16	1		200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
223	649	7512	5	20	EA	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
224	651	5541	0	0	0	0		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	M			
225	654	7536	4	120	16	6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
225	654	7536	1	2400	16	1		200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	COMMERCIAL OIL	M		
225	654	7536	5	48	EA	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
225	654	7536	7	150	16	1		50	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
227	665	7538	5	20	EA	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M			
227	665	7538	1	960	16	1		500	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CANADIAN-OIL	M	
229	666	5559	1	2400	16	1		200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	M	
229	666	5559	7	40	16	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
229	666	5559	5	240	16	6		20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
230	670	5541	0	0	0	0		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	M			
231	673	7538	5	120	EA	4		10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
231	673	7538	1	1200	16	1		500	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	M	
231	673	7538	7	24	16	1		10	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
231	673	7538	4	360	16	6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
233	675	7535	5	360	EA	4		30	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
233	675	7535	1	4800	16	1		400	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	CAN-AM OIL	M	
235	677	5926	1	250	16	1		500	16	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	M	
235	677	5926	5	120	EA	4		3	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
236	687	7538	5	100	EA	4		10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
236	687	7538	7	87	16	1		10	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	
236	687	7538	1	8000	16	1		200	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	M
238	699	5541	0	0	0	0		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	M		
240	707	7535	6	12	16	6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	M		
240	707	7535	7	48	16	5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M		
241	709	7538	1	800	16	1		200	16	0	1	0	0	0																												

## RETAIL SERVICE STATION SURVEY/WASTE FILE

[illegible]



## NATURE OF BUSINESS RESPONSES

[illegible]

## RETAIL SERVICE STATION SURVEY/WASTE FILE

[illegible]

### NATURE OF BUSINESS RESPONSES

P  
P

### NATURE OF BUSINESS RESPONSES

CN	PG	PSIC	10.DTYREP	UT	DM	DTSTO	UT	DM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	TOT	WASTE HAULER NAME	REGION	
286	823	5541	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
287	0	7539	4	1300	16	6	0	16	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N		
287	0	7539	8	70	16	6	70	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
288	826	7512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	3	N		
289	826	5521	1	400	16	1	250	16	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	3	CAN-AM OIL	N	
292	827	5541	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N		
293	828	3594	1	60	16	1	200	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	CAN-AM OIL	N	
293	828	3594	7	40	16	1	40	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	N	
293	828	3594	4	24	16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		
294	0	7539	9	300	16	0	300	16	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
294	0	7539	4	660	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
294	0	7539	2	30	16	6	0	16	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	N	
295	829	7538	1	900	16	1	1000	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N
295	829	7538	1	480	16	1	500	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N
295	829	7538	4	50	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
295	829	7538	5	100	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
295	829	7538	2	10	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
295	829	7538	5	25	EA	4	4	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
296	829	7538	1	900	16	1	1000	16	0	1	0	0	0	0	0	0	1	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	2	CAN-AM OIL	N
296	829	7538	5	100	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
296	829	7538	2	10	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
297	829	7536	7	200	16	1	200	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	N
297	829	7536	7	87	16	1	10	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	N
297	829	7536	2	400	16	1	400	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	N
297	829	7536	1	1320	16	1	500	16	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N
298	829	5926	5	300	EA	4	30	EA	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	J'S BATTERIES	N
299	829	5511	4	250	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
299	829	5511	1	350	16	1	500	16	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	3	CAN-AM OIL	N
299	829	5511	5	75	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
299	829	5511	7	25	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	5	75	EA	4	10	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
300	829	5511	5	200	EA	4	20	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	1	10000	16	1	2500	16	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3	CAN-AM OIL	N
300	829	5511	4	500	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	4	250	16	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	7	25	16	6	0	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
300	829	5511	1	350	16	1	500	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N
301	830	7535	6	10	16	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N	
302	830	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
302	830	5559	7	87	16	1	10	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	N
302	830	5559	5	10	EA	2	1	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
302	830	5559	1	5	16	2	5	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
303	830	5521	1	1200	16	1	400	16	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	SAFETY KLEEN	N
303	830	5521	5	100	EA	4	20	EA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N
303	830	5521	7	87	16	1	10	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAFETY KLEEN	N
304	831	7535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N	
305	831	5571	1	2	16	2	2	16	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	N	
306	831	5559	5	10	EA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	
306	831	5559	7	30	16	1	5	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	N
306	831	5559	1	400	16	0	200	16	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	CAN-AM OIL	N
307	0	3594	1	2500	16	1	500	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	CAN-AM OIL	N
307	0	3594	8	350	16	1	350	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CAN-AM OIL	N
308	832	3713	7	20	16	2	10	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	

Appendix F

F-1 Coding Description

F-2 Database Waste Hauler Information Database



Appendix F-1  
Coding Description





# CODING DESCRIPTIONS FOR THE RETAIL SERVICE STATIONS / WASTE HAULERS FILE

No.	HAULER'S NAME	ADDRESS	PHONE #	REGIONS SERVED L,L,M,N,or P	WASTE TYPE(S) HAULED
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75	75	75	75	75	75
76	76	76	76	76	76
77	77	77	77	77	77
78	78	78	78	78	78
79	79	79	79	79	79
80	80	80	80	80	80
81	81	81	81	81	81
82	82	82	82	82	82
83	83	83	83	83	83
84	84	84	84	84	84
85	85	85	85	85	85
86	86	86	86	86	86
87	87	87	87	87	87
88	88	88	88	88	88
89	89	89	89	89	89
90	90	90	90	90	90
91	91	91	91	91	91
92	92	92	92	92	92
93	93	93	93	93	93
94	94	94	94	94	94
95	95	95	95	95	95
96	96	96	96	96	96
97	97	97	97	97	97
98	98	98	98	98	98
99	99	99	99	99	99
100	100	100	100	100	100

1-> WASTE TYPE(s) hauled

1-> BASIC HAULER STATISTICS

1-> POSTAL CODE REGION served

1-> Arbitrarily set HAULER NUMBER

1. Waste Oils
2. Interceptor waste oil/water/sludge
3. Water from Gas Storage Tanks
4. Waste Coolant
5. Waste Batteries
6. Waste Paint Filters
7. Non-Halogenated Solvents, Thinners
8. Waste Caustic Cleaners
9. Halogenated Cleaners



Appendix F-2

Waste Hauler Information Database



DATABASE OF WASTE HAULER INFORMATION

No.	HAULER'S NAME	ADDRESS	PHONE #	REGIONS SERVED K,L,M,N,or P	WASTE TYPE(S) HAULED
1	COHEN & COHEN	1963 MERIVALE RD. NEPEAN	(613) 225-9111	K	5
2	FORT BATTERY SERVICE	222 MONTREAL ST. KINGSTON	(613) 544-0031	k	5
3	LACOMBE WASTE OILS	5687 POWER RD. OTTAWA	(613) 733-3349	K	1,4
4	BUCKMAN TRANSPORT	P.O.BOX 601 PETERBOROUGH K9J 6Z8	(705) 939-6311 or (416) 686-3624	L	2
5	CLAUDE HARNESS	R.R.#1 NEWTONVILLE	(416) 786-2552	L	1
6	GRW. LTD.	serves Oshawa		L	7
7	JIM'S TRUCKING	580 RIDGE ST. WELLAND	(416) 734-9422	L	1
8	JOHN KNOX PUMPING	serves Nobleton		L	7
9	JORDAN WHOLESALE FLORISTS	R.R.#1 VINELAND STATION, VINELAND	(416) 562-7313	L	1
10	RALPH TAYLOR	serves St. Catharines		L	1
11	PASSOM	serves Bolton		L	4
12	WOODINGTON SYSTEMS	2233 STANLEY ST. THOROLD L2V 3Y8	(416) 262-4227	L	1
13	CANADIAN OIL	309 CHERRY ST. TORONTO M5A 3L3	(416) 461-7511	L,M,N	1,2,4,7
14	ABBA WASTE OIL SERVICE	13 SHAMROCK AVE. ETOBICOKE	(416) 259-1822	M	1
15	COMMERCIAL OIL	serves Toronto		M	1
16	BRAD'S CAR OILING	serves Chepstow,Hanover		N	1
17	FAM OIL LTD.	R.R.#2 CALEDONIA	(416) 765-2985	N	1
18	J's BATTERIES	serves Waterloo		N	5
19	PALRO LIQUID WASTE REMOVAL LTD.	P.O.BOX 1477 BRANTFORD N3T 5V6	(519) 756-9200 or (416) 281-3585	N	2
20	PEERLESS	serves Stratford		N	1
21	A1 SEWAGE	R.R.#5 HWY #17 THUNDER BAY	(705) 939-2712	P	1
22	KEITH THOMPSON	1494 SOUTHVIEW DR. SUDBURY	(705) 522-2900	P	1,2
23	NORTHERN SANITATION	1024 CARMEN DR. SUDBURY	(705) 566-1042	P	-8
24	NORTHSTAR PUMPING	407 WILSON AVE. TIMMINS	(705) 264-0147	P	4
25	WELLWOOD	134 RANKIN AVE. SAULT STE. MARIE	(705) 253-5352	P	1
26	CAN-AM OILS SERVICES	P.O.BOX 130 BRESLAU N0B 1M0	(519) 648-2291 or (416) 461-6354	ALL	1,2,4,7,8
27	SAFETY KLEEN (Head office)	1100 SHERBROOKE, SUITE 2205, MONTREAL, P.Q., H3A 1G9		ALL	1,7



APPENDIX G

DEVELOPMENT OF POPULATION  
ESTIMATES





## APPENDIX G

### Development of Population Estimates

The population estimates for extrapolation were developed using the following methodology:

- (i) The secondary SIC codes were counted for each primary SIC category for all service stations contacted during the survey (These secondary SIC codes were assumed to represent the duplicity in the Polk counts for each SIC category).
- (ii) The number of secondary SIC codes in the sample population were extrapolated to the provincial population.
- (iii) The number of secondary SIC codes was subtracted from the count for each SIC category provided by R.L. Polk to obtain a revised count (excluding overlaps).
- (iv) The revised counts were corrected to produce Population Estimate A in which the total estimated population equals the total actual population of 17,590 reported by Polk.

Note: a) SIC codes where no overlap occurred were not corrected  
b) If corrected population values exceeded the original provincial counts (from Polk), they were set equal to the provincial count (see SIC 5541)

- (v) Population Estimate B was calculated similarly to A but the total estimated population was assumed to equal the total actual population of 17,590 minus 13.37% due to incorrect addresses in the Polk listing (see Section 2.3) for discussion). The total population for the B estimate was 15,239.

The data generated in developing population estimates and the actual population estimates are documented in Table G-1.

TABLE 8-1 DEVELOPMENT OF POPULATION ESTIMATES FOR EITAPOLATIONS

PRIMARY SIC	APPROX. SURVEY/ ONTARIO CONTACTS	OVERLAPPING SIC'S - TYPE AND NUMBER																Total Overlap in Population
		18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	18aap.Pop.	
825	10	2	165	3	248	0	0	1	83	0	0	1	83	0	0	1	83	0
655	9	3	218	0	0	0	0	1	73	1	73	0	0	0	0	0	0	0
7538	119	0	0	38	2906	0	0	2	133	3	229	2	133	0	0	0	2	133
7536	735	10	6	441	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3250	43	11	831	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7535	26	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7512	2175	26	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5926	215	7	2	61	1	31	0	0	0	0	0	0	0	0	0	0	0	0
5571	390	6	0	0	1	65	0	0	0	0	0	0	0	0	0	0	0	0
5559	485	7	1	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5541	5385	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5521	2825	37	0	611	1	76	0	0	0	0	0	0	0	0	0	0	0	0
5511	1385	18	18	1385	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4512	25	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4469	545	6	1	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3713	110	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3594	215	6	3	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	28520	382	56	4064	44	3325	0	0	4	312	8	549	8	559	2	159	24	1855
Revised Counts (Encl. Overlaps)		5036	2260	215	343	166	2691	1276	970	187	238	545	25	1100	110	474	215	113
Population Estimate A		5671	2544	8	215	386	187	3030	1380	1092	205	268	8	545	8	477	8	215
Population Estimate B		4912	2704	186	335	162	2625	1196	946	178	232	472	22	1073	95	413	186	151

8 No multiplier required as no overlaps present

1 Represents establishments contacted/attempted to contact, excluding on site visits

2 Total Overlapping Population

3 Revised Counts calculated by subtracting overlapping counts from approximate Ontario counts

4 Multiplier used for Population Estimate A calculated by Population Estimate A - (SIC's 5926+3594+4469+4512+3713) / Revised Count Population - (SIC's 5926+3594+4469+4512+3713) = Total Population (Polk)

5 Population Estimate B calculated by Total Population (Polk) minus 13.37% to account for incorrect addresses

Appendix H  
Chemical Analysis





**CANVIRO**  
Analytical Laboratories Ltd.

TABLE 1: SUMMARY OF SERVICE STATION SAMPLE RESULTS

IDENTIFICATION	RAD. SHOP CAUSTIC	ENGINE SHOP CAUSTIC	ENGINE SHOP CAUSTIC SLUDGE	USED ETHYLENE GLYCOL
CANVIRO IDENTIFICATION NO.	0258-01	0258-02	0258-03	0258-04
C.	CONCENTRATION			
	mg/L	mg/L	mg/L	mg/L
ALUMINUM (Al)	56.9	59.3	392	7.08
IRON (Fe)	1.83	265	3620	11.1
CALCIUM (Ca)	4.49	320	3870	2.25
MAGNESIUM (Mg)	0.47	134	1410	0.70
SODIUM (Na)	*	*	*	*
POTASSIUM (K)	1560	224	232	1170
TITANIUM (Ti)	0.042	0.86	6.73	<0.06
MANGANESE (Mn)	0.050	7.18	68.2	0.11
PHOSPHORUS (P)	224.6	72.0	312.3	308.7
BARIUM (Ba)	0.059	8.35	1.92	0.027
CHROMIUM (Cr)	1.80	11.6	53.3	<0.30
COPPER (Cu)	60.8	32.4	231	2.66
NICKEL (Ni)	<0.25	0.70	11.6	<0.25
LEAD (Pb)	235	291	1150	27.4
ZINC (Zn)	16.9	49.1	332	1.63
VANADIUM (V)	<0.10	0.18	0.57	<0.10
STRONTIUM (Sr)	0.020	1.17	11.3	0.020
COBALT (Co)	<0.20	<0.20	2.52	<0.20
MOLYBDENUM (Mo)	38.3	6.87	11.7	2.50
SILVER (Ag)	<0.3	<0.3	<0.3	<0.3
CADMIUM (Cd)	<0.25	0.42	5.32	<0.25
BERYLLIUM (Be)	<0.03	<0.03	<0.03	<0.03
SILICON (Si)	25.8	134.0	74.7	32.2
BORON (B)	261	14.5	17.9	1310

\* Interference preventing analysis

RESPECTFULLY YOURS

*Douglas McCallum*  
DOUGLAS MCCALLUM



**CANVIRO**  
Analytical Laboratories Ltd.

TABLE 1: SUMMARY OF SERVICE STATION SAMPLE RESULTS

IDENTIFICATION	BATTERY ACID PH 0.05	BATTERY LEAD LEACHATE	CAUSTIC SLUDGE LEACHATE	NEW ETHYLENE GLYCOL
CANVIRO IDENTIFICATION NO.	0263-01	0263-02	0263-03	0263-04
TOTAL SOLIDS %	NA	96.4	51.9	NA
	CONCENTRATION			
	mg/L	mg/L	mg/L	mg/L
ALUMINUM (Al)	18.6	<0.15	<0.15	4.36
IRON (Fe)	14.0	<0.030	<0.045	5.19
CALCIUM (Ca)	28.1	1.55	9.61	1.92
MAGNESIUM (Mg)	30.4	0.70	9.89	0.24
SODIUM (Na)	288	2.33	4170	5280
POTASSIUM (K)	0.40	0.12	156	950
TITANIUM (Ti)	<0.0006	<0.0006	<0.0006	0.049
MANGANESE (Mn)	0.016	<0.003	0.63	0.047
PHOSPHORUS (P)	0.13	<0.13	4.86	440.1
BARIUM (Ba)	<0.001	0.033	0.78	0.054
CHROMIUM (Cr)	0.12	<0.03	<0.03	<0.03
COPPER (Cu)	0.26	<0.015	75.6	0.12
NICKEL (Ni)	0.064	<0.025	0.045	<0.025
LEAD (Pb)	2.25	30.3	11.7	<0.08
ZINC (Zn)	0.86	0.076	31.1	<0.015
VANADIUM (V)	<0.01	<0.01	<0.01	<0.01
STRONTIUM (Sr)	0.002	0.004	0.16	0.037
COBALT (Co)	<0.02	<0.02	<0.02	<0.02
MOLYBDENUM (Mo)	<0.04	<0.04	0.83	4.30
SILVER (Ag)	0.008	<0.03	<0.03	<0.03
CADMIUM (Cd)	0.082	<0.025	0.049	<0.025
BERYLLIUM (Be)	<0.003	<0.003	<0.003	<0.003
SILICON (Si)	6.2	3.98	52.8	137.8
BORON (B)	0.20	0.025	19.7	1430
ARSENIC (As)	<0.30	<0.30	<0.30	<0.30

RESPECTFULLY YOURS

*Douglas McCallum*  
DOUGLAS MCCALLUM

APPENDIX I

SIC AND WASTE TYPE  
REFERENCE PAGE





APPENDIX I

Standard Industrial Code (SIC)	Description
7542	Car Washing & Polishing
7539	Radiators Automotive
7538	Automobile Repairing & Service
7536	Transmission Automotive
7535	Automobile Repairing & Painting
7512	Automobile Renting & Leasing
5926	Batteries Storage Retail
5571	Motorcycle Dealers
5559	Snowmobiles
5541	Service Stations Gasoline
5521	Automobile Dealers Used
5511	Automobile Dealers New
4512	Helicopter Dealers
4469	Marine Motor Dealer
3713	Automobile Customizing
3594	Engines Rebuilding & Exchanging

Waste Type Category	Description
1	Waste Oils
2	Interceptor Wastes (Waste Oil/Sludge/Water)
3	Gasoline Storage Tank Bottoms
4	Coolant
5	Batteries
6	Paint Sludge/Filters
7	Non-Halogenated Cleaners, Thinners and Solvents
8	Caustic
9	Halogenated Cleaners





